DOCUMENT RESUME

ED 197 113 CE 027 684

AUTHOR Selby, David
TITLE Short-Term Postsecondary Education and Work Four Years After High School.
INSTITUTION Froomkin (Joseph) Inc., Washington, D.C.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE May 80
CONTRACT 400-79-0015
NOTE 297p.

EDRS PRICE MF01/PC12 Plus Postage.
DESCRIPTORS *Educational Attainment; *Educational Benefits; *Education Work Relationship; Employment Experience; *Employment Level; *Employment Potential; Evaluation; Followup Studies; Graduates; *Postsecondary Education; Two Year Colleges; Vocational Education

ABSTRACT

This study investigates employment benefits from postsecondary education or training (PSE) below the baccalaureate degree. The kinds of PSE considered are (1) two-year academic degrees, (2) two-year vocational degrees from colleges, (3) two-year vocational degrees from vocational schools, (4) non-degree credentials, and (5) participation not resulting in any credential. Benefits measured included employment success during 1975-76 and occupational status, hourly earnings, and satisfaction with pay and with jobs. The analyses also examined PSE influence on changes in job status and hourly earnings over the period 1974-76. Data for the study are from follow-up surveys of a large, nationally representative sample of 1972 high school graduates. Major findings include the following: (1) people with sub-baccalaureate PSE had some employment advantage over comparable people whose education stopped with high school; (2) benefits are largely indirect; (3) sub-baccalaureate PSE does not eliminate status and wage disadvantages for women and minority-group members, and (4) individual PSE participants cannot depend on realizing the average benefit for a given credential. Additionally, the study found that participation in PSE pushed back the date for job entry resulting in loss of job experience and seniority, a major disadvantage to some people in certain occupations. (Twenty tables in which data are analyzed with a multitude of variables are included in the appendixes.) (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

JOSEPH FROOMKIN INC.
1730 K STREET, N. W., WASHINGTON, D. C. 20006

ED197113

SHORT-TERM POSTSECONDARY EDUCATION AND WORK FOUR YEARS AFTER HIGH SCHOOL

By

David Selby

National Institute of Education
Contract No. 400-79-0015
May 1980

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CE027684

Executive Summary

I. Background

This study investigates employment benefits from postsecondary education or training (PSE) below the baccalaureate degree. The kinds of PSE considered are (a) two-year academic degrees, (b) two-year vocational degrees from colleges, (c) two-year vocational degrees from vocational schools, (d) non-degree credentials, and (e) participation not resulting in any credential.

Benefits measured include employment success during 1975-76 and (as of October 1976) occupational status, hourly earnings, and satisfaction with pay and with jobs. The analyses also examine PSE influence on changes in job status and hourly earnings over the period 1974-76.

Data for the study are from follow-up surveys of a large, nationally representative sample of 1972 high school graduates. Problems inherent in the data limit the precision of detailed benefit estimates, but the broad results can be accepted (see Ch. 5).

II. Major Findings

People with sub-baccalaureate PSE had some employment advantages over comparable people whose education stopped with high school. The kind of PSE exposure, sex, and minority status affect both the kind and magnitude of benefits.

Benefits are largely indirect. PSE influences other aspects of work experience, which in turn determine the major outcomes. If local conditions inhibit the free play of these indirect influences, PSE benefits will be depressed. Hence PSE benefits depend partly on local labor market conditions.

Sub-baccalaureate PSE does not eliminate status and wage disadvantages for women and minority-group members. Women and minorities held lower-status jobs and were paid less even when background, education, place of residence, work history, and job content were taken into account. The gap between women and men was greater than that between minorities and non-minorities.

The analytic equations account for only small proportions of variation in the major outcomes. Consequently, individual predictions are unlikely to be very accurate. This implies that individual PSE participants cannot depend on realizing the average benefit for a given credential. This

risk may make postsecondary education a poor choice for some young people.

III. Details

PSE participation reduces early work experience. This exerts varied and long-lasting negative influence on benefits. One important consequence is that, relative to the comparison group, 1976 job seniority is reduced by 5 to 12 months, depending on the PSE category. Job seniority is an important factor influencing wages.

PSE enhances initial (1974) occupational status. This initiates a chain of influences which generate other benefits.

Employment success benefits are associated especially with college vocational degrees and non-degree credentials. When the damaging effects of foregone early experience are discounted, all PSE credentials (but not dropping out) were of some, but not great, help as shields against unemployment during the 1975-76 recovery from recession.

The average 1976 occupational status of PSE participants, including dropouts, was greater than that of the comparison group. Two-year college degrees provided the greatest advantage, while the advantage for dropouts was smallest.

In general, PSE credentials did not affect 1976 wages. Incipient benefits from enhanced status were offset by penalties for inexperience. Dropouts earned slightly less than the comparison group because of lost experience. Among women, however, two-year academic degrees provided a sizable wage advantage, as did other credentials after penalties for lost experience were discounted. Women with college vocational degrees gained no pay benefit.

On average, satisfaction with pay was not affected by PSE. Among women, however, those with college vocational degrees were substantially less satisfied than any other group. This is understandable, in light of their failure to gain wage benefits.

Overall job satisfaction was somewhat higher among most PSE credential holders, but the advantage is rather small. Much of this advantage is attributable to job content, especially a greater emphasis on working with ideas than with things. Job satisfaction for dropouts was about the same as for the comparison group.

In general, PSE did not enhance occupational status mobility during 1974-76. This appears to be the result of higher initial status for PSE participants, coupled with a ceiling effect for status mobility. By contrast, wage growth over the period was increased fairly substantially by credentials. Dropouts' wages did not, however, rise faster than those of comparable high school graduates with no PSE.

Contents

Executive Summary		i-iii
Chapter 1:	Effects of Sub-baccalaureate PSE on Employment: An Overview	1-30
	The PSE Attainment Categories	1
	Main Conclusions	5
	Basic Results of the Analyses	8
	Orientation	8
	Gross benefits	10
	Benefits net of other influences	12
	Importance of foregone experience	16
	Mediation of PSE influence	22
	Variable PSE effects	23
	Variations: Some results of sub-sample analyses	25
	Women	26
	Minority groups	28
	Summary	29
Chapter 2:	Differences in Work Experience, 1975-76	31-65
	Descriptive Background	31
	The Analyses	37
	Impact of 1975-76 Labor Market Success	40
	Final Equation	40
	Control for Background Alone	42
	Influence of Intervening Variates	43
	Discussion	49
	Impact on 1976 Employment Outcomes	53
	Unmediated PSE Influence	54
	Mediation by Intervening Variates	55
	Summary of Cross-sectional Analyses	64
Chapter 3:	Change in Occupational Status and Hourly Earnings, 1974 to 1976	66-82
	Descriptive Background	66
	The Analyses	68
	Results	71
	PSE Effects Net of Other Influences	71
	Mediation of PSE Influences	75
	Summary	80

Chapter 4: Summary and Implications 83-100

Chapter 5: Methods 101-138

Objectives 101
Sample 103
Analyses 107
Data 111

Location 111
Postsecondary Education 112
Labor Market Success 114
Occupational Status 116
Hourly Earnings 118
Satisfaction 119
Change Scores 119
Control Variates 121

References 139

Appendices

Appendix 1-1: Final Equations for Cross-sectional Outcomes--

Table 5A: Labor Market Success, 1975-76
Table 5B: 1976 Occupational Status
Table 5C: 1976 Hourly Earnings
Table 5D: Satisfaction with Pay, 1976
Table 5E: Overall Job Satisfaction, 1976

Appendix 2-1: Table 6: Correlations between PSE and Control or Outcome Variates

Appendix 2-2: Tables 8A-8F: Effects of PSE on Labor Market Success and Intervening Variates

Appendix 2-3: Figures 1A-1F: Models of PSE Influence on 1975-76 Labor Market Success

Appendix 2-4: Tables 9A-9K: Effects of PSE on 1976 Outcomes and Intervening Variates

Appendix 2-5: Figures 2A-2E: Transmission Network for PSE Influence on 1976 Wage

Appendix 2-6: Table 10: Effect of PSE on Employment Outcomes: Stepped Analyses for Subsamples

10A: Women
10B: Minority Groups

Appendix 3-1: Tables 13 and 14: Effects of PSE on 1974-76 Status Mobility and Wage Growth: Stepped Analyses

Appendix 3-2: Comment on an Apparent Inconsistency between the Static and Dynamic Analyses

Table 15: Results of Special Investigation of Wages in the Dynamic Analysis Sample

Appendix 5-1: Tables 17 and 18: Factor Analysis of State Descriptors

Appendix 5-2: Tables 19 and 20: Means and Deviations of Variates

Appendix 5-3: Glossary of Variates

Text Tables

Table 1: Effect of PSE on Employment Outcomes, Other Influences Not Controlled 11

Table 2: Effect of PSE on Outcomes, Background and Residence Location Controlled 13

Table 3: Estimated Differences in Outcomes, PSE Participants vs. High School Graduates with Comparable Background and 1976 Location 18

Table 4: Estimated Differences in Outcomes, PSE Participants vs. High School Graduates with Comparable Background, 1976 Location, and Early Work Experience 19

Table 7: Factors Influencing 1975-76 Labor Market Success 41

Table 11: Factors Affecting Changes in Status and Wages, 1974-76 72

Table 12: Effects of PSE on Change in Occupational Status and Hourly Earnings, 1974 to 1976 76

Table 16: Data Deletions, by Reason 105

Text Figure

Figure 3: Ramifications of the Relationship between a Two-year Academic Degree and 1976 Wage 62

CHAPTER ONE

EFFECTS OF SUB-BACCALAUREATE PSE ON EMPLOYMENT: AN OVERVIEW

The PSE Attainment Categories

Five categories of postsecondary education (PSE) are considered in this study:

1. Respondents who were involved in PSE during the period after high school through October 1974 but claim no form of credential at all. These are essentially dropouts from PSE, and account for roughly 30 percent of the analysis sample. (SMPSENCR)[1/]

2. Respondents who earned a non-degree credential, such as certificates, licenses, and diplomas (other than high school or GED) during the period mentioned above. The sources and exact nature of these credentials are not considered: some may have been awarded by employers, some by formal schools, some by voluntary associations (e.g., unions), some by governments (e.g., certain licenses such as notary public or the like). Holders of such credentials make up about one-eighth of the analysis sample. (PSECRDT)

3. Respondents who earned a two- or three-year vocational degree, from a vocational school, during the specified

---

[1/] PSE categories are designated by the parenthesized names in tables and text.

period. These constitute just under 2 percent of the analysis sample, or one in every 50 sample members. (VOCDGVOC)

4. Respondents who earned a two- or three-year vocational degree at a college (principally two-year colleges) during the specified period. These are the smallest contingent of the sample, only about 1 in 100. (VOCDGCOL)

5. Respondents who earned an academically-oriented two-year degree from a college (principally two-year colleges) during the specified period. These are chiefly Associate in Arts degrees, in fields of study defined as general, arts and science, technical or semiprofessional by NCES for its higher education statistics program.[1/] A few more than 1 in 40 sample members held such degrees. (ACADG2YR)

By implication, a sixth category--the largest--is also included: people who graduated from high school in spring 1972 and thereafter were never engaged in PSE and obtained no credentials of any sort. These are the reference category, to whom I compare all others. Approximately half (51.4 percent) of the analysis sample were high school

---

[1/] Technical and semiprofessional degrees are treated here as A.A. level equivalents of B.A. and higher degrees with an occupational orientation, e.g., engineering, business administration, agriculture, medicine.

graduates, without reported PSE experience or credentials.

Readers who wonder at the high proportion of drop-outs (SMPSENCR) and the paucity of degree holders in the analysis sample must keep in mind the nature of that sample: any member of the high school class of 1972 who were degree or full-time students after October, 1974, or who obtained two-year degrees after that date, have been excluded for analytical reasons.[1/] Since many who eventually obtain two-year degrees get them after more than two years of PSE participation, the analysis sample does not include all 1972 graduates who held sub-baccalaureate degrees in October 1976, the terminal date for employment outcomes.

The study focuses on young men and women whose formal PSE had terminated by October, 1974--roughly two years and three months after high school graduation. They would be, in the case of degree holders, those who entered school directly after high school and completed the requirements for their degrees in about as little time as possible. The restriction on completion date tends to bias the sample of degree holders toward those whose circumstances permitted or encouraged speedy completion. Among holders of degrees from colleges, women are a dominant majority (70 to 75 percent) and members of minority groups are so few that reliable

---

1/ See Chapter 5, "Methods."

assessments of degree effects cannot be made for them alone.[1/]

There are, of course, systematic variations in the characteristics of members of each category. Broadly speaking, those who engage in PSE--regardless of attainment--are different in many respects from those who do not. Variations in residence locale (state characteristics, city size) are as important as personal characteristics, because (a) short-term PSE is not equally likely to occur in all places, (b) it may affect geographic mobility, and (c) the socioeconomic characteristics of the place of residence will certainly affect employment experience.

To compensate for the relationship of both personal and residential characteristics to PSE participation categories, I have used statistical controls which serve to isolate effects specific to PSE from them.[2/] Thus the reported effects of PSE on employment cannot be attributed to associated characteristics which have been considered in the analyses; that is, the known over- and under-representations of specified categories of respondents are not likely causes of the differences

---

[1/] Analyses for minority respondents alone in fact include the degree holders as separate PSE categories, but their numbers are so few that I prefer not to rely on the results obtained. Instead, I make judgemental inferences based on the data for the general sample and for minorities with non-degree PSE in conjunction with the data for minority degree holders.

[2/] I have also made use of an unusually stringent criterion of acceptance for PSE effects, in terms of statistical significance levels. See Chapter 5, "Methods," for comment.

attributed to PSE.

It should be noted that personality traits, such as vocational interests, educational and occupational aspirations, and scholastic ability, are not included among the control variates.[1/] Personality traits may contribute to both propensity to enroll in postsecondary schooling and later employment outcomes, hence some effects attributed to postsecondary attainment might be all or partly attributable to personality factors.

Some imperfect proxies for personality traits, namely high school program and reported "average" high school grades, are included in the analyses. These can be viewed as consequences of traits such as those cited and other factors, some of which (such as family socioeconomic status) are also included in the equations.

Main Conclusions

This overview provides the framework for several conclusions:

1. In general, PSE below the baccalaureate is beneficial over the near term, and there is reason to expect greater long-run benefits.

[1/] Measures of aspiration and scholastic ability were obtained in the base year survey. They are omitted from the analysis because about one fourth of all survey respondents did not participate in the base year survey, owing to inability of many sampled schools to participate on short notice. To have included these traits in the analysis would have required a priori deletion of a large part of the sample, already shrunken by high levels of item non-response.

2. The loss of early work experience associated with PSE participation constitutes a pervasive and severe disadvantage in subsequent work experience.
3. Although <u>average</u> benefits for members of various PSE categories are demonstrable, the effect of PSE for individuals is not generally predictable. Low levels of explained variance and high expected errors of prediction predominate in the analyses, which indicates that PSE is no guarantee of realized benefits in individual cases. Indeed, where <u>only</u> PSE is used to predict outcomes, almost none of the variance in any outcome is explained and expected prediction error is commensurately very high.
4. Effects of PSE tend to be mediated by other factors; that is, PSE affects other elements of work experience, which in turn exert direct influence on the main outcomes.
5. There are often marked differences in the estimated effects of different types of PSE. In some instances, large effects appear to be a function of a limited supply of particular credentials. This suggests an unfilled demand for some credentials, most notably college vocational degrees.
6. Estimates of the effects of PSE depend strongly on what confounding influences are controlled. Background and residential location must certainly be

controlled, and the clearest evidence of effects is found when early experience is added to these. The sensitivity of estimates to controls for antecedent or intervening variables raises the issue of what comparison is most appropriate.

7. The main employment outcome of PSE is enhanced occupational status. As compared to high school graduates with equal initial (1974) occupational status, those with college degrees experienced considerably greater status increase from 1974 to 1976. Dropouts had a similar but much smaller advantage.
8. Some, but not all, forms of PSE participation somewhat improved labor market (employment) success, an effect which was more general and larger when the detrimental influence of lost early experience was discounted.
9. Wage differences were few and generally small. When the disadvantage of limited early work experience is nullified, holders of two-year academic degrees have a fairly substantial benefit. A wage penalty for dropping out is shown to be attributable to loss of early experience. Except for college vocational degrees, PSE credentials substantially increase wage growth from 1974 to 1976.[1/]

[1/] But see comments on an apparent inconsistency regarding wage effects (App. 3-2).

10. Minority group members, so far as can be determined, received far fewer benefits than those generally found for given PSE. Although non-degree credentials appeared to yield better-than-average status benefits, this probably amounts to little more than allowing access to a mediocre non-minority occupation. Minority-group membership per se imposes both status and wage penalties.
11. PSE affects women's experience differently than the general experience (hence men's). Women received lesser benefits in occupational status and labor market success, but greater wage and job satisfaction benefits. When other factors are controlled, women in circumstances comparable to men had lower-status and lower-paid jobs in 1976.

Basic Results of the Analyses

a. Orientation

Tables 1 through 4 capture the basic orientation of the analysis, which is to trace the process by which postsecondary education (PSE) is translated into employment benefits (if any). They present data on the estimated effects of PSE as controls are added to increase the similarity of PSE participants and the comparison (or, reference) group of their fellow 1972 classmates who did not participate in PSE.

Each table presents estimates from a different prediction equation. The equations are arranged to add progressively

more controls for factors preceding and following PSE.[1/] As controls are added, required similarity between those compared is increased. In effect, PSE participants are compared to an ever-narrowing circle of high school graduates, all similar with regard to the factors controlled in the equations.

For example, the estimates in table 1 pertain to a comparison with no requirements for similarity (except 1972 graduation and 1976 employment). Table 2 pertains to a comparison where similarity in background characteristics and 1976 residence location is required. Table 4 adds the requirement that those compared be similar in early work experience, as well as background and 1976 residence.[2/]

In most instances, as added controls increase similarity between PSE participants and comparison non-participants, the estimated effects of PSE change. By examining these changes, some inferences can be made about processes through which PSE is translated into employment benefits.

From table 5 on, excerpts from the successive equations are shown, to emphasize the shifts in estimated PSE effects. In these consolidated tables, each step downward represents a new equation which differs from the preceding by the addition of a specified variate or block of variates. Therefore, each

---

[1/] In most instances, this refers to a time sequence, but there are instances in which reference is to logical precedence.

[2/] Table 3 is a special-purpose table, with data from equations specific to women and to minorities for comparison with the whole-sample equations.

step also presents a new set of estimates for PSE effects.

The text interprets the observed shifts to describe the process of PSE influence as indicated by the successive equations. Except for a detailed discussion of the step-by-step development of the equations for labor market success (used as an illustration), most discussion only highlights important changes. The detailed findings for each outcome are summarized for the benefit of those who prefer not to follow the entire discussion.

b. Gross benefits

When no account is taken of differing characteristics (table 1), all categories of PSE reduce 1976 job seniority and increase 1976 occupational status, certain types (PSECRDT, VOCDGCOL) improve relative success in finding and holding jobs during 1975-76, one (VOCDGCOL) reduces satisfaction with pay and fringe benefits in 1976, and both PSECRDT and ACADG2YR increase overall job satisfaction in 1976, by comparison with those who had no PSE experience or credentials. None had any direct effect on hourly earnings in 1976.[1/] Except for the impact on occupational status, PSE at the two-year level has, on average, mixed and not very large effects.

Though the effects of PSE are statistically significant for groups, one would not care to predict employment outcomes for a given person. The equations resting solely

---

[1/] But most credentials increased wage growth rates relative to those of high school graduates. See Chapter 3, table 12.

Table 1: Effect of PSE on Employment Outcomes, Other Influences Not Controlled

	REGRESSION COEFFICIENTS										EQUATION	
	SMPSENCR		PSECRDT		VOCDGVOC		VOCDGCOL		ACADG2YR			
OUTCOME	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta	R^2	SEE
LMSUC56	NS		.025	.05	NS		.067	.04	NS		.005	.172
JOBLONG6	-7.7	-.19	-5.2	-.09	-8.1	-.06	-13.3	-.07	-10.7	-.09	.042	18.3
GOCSTAT6	3.9	.10	2.9	.05	6.9	.05	9.1	.05	11.8	.11	.021	17.9
CURRWGE6	NS		NS		NS		NS		NS		NS	1.53
PAYSAT6	NS		NS		NS		NS		NS		NS	1.14
JOBSAT6	NS		.11	.04	NS		NS		.26	.04	.004	1.03

NOTES: Cell entries are unstandardized (B) and standardized (Beta) coefficients. "NS" indicates not significant at (nominal) $p \leq .025$ (see Ch. 5 for comment). Effects are estimated relative to sample members without postsecondary education or training (see Ch. 5 and Appendix 5-3).

The equation for LMSUC56 (weighted N = 6,851) includes all persons in the civilian labor force as of October 1976. Remaining equations (weighted N = 5,497) exclude those unemployed in the reference month. Difference in sample sizes partly due to variation in missing-data exclusions, not wholly to exclusion of unemployed.

Note that explained variance (R^2) is quite small in these equations, with two having non-significant regressions.

on PSE account for almost none of the variation in outcomes, and the expected error for any individual prediction made solely on the basis of PSE is large (table 1). We are, in short, little more likely to be correct in estimating the employment experience of a particular person if we know only which of these PSE categories he fits than we are if we lack that knowledge.

c. Benefits net of other influences

Table 2 gives the estimated effects of PSE when background and 1976 location are considered along with PSE.[1/] Note first that individual predictions would still be, on average, quite inaccurate. The greatest improvement would be for hourly earnings in 1976, but the expected error is still large.

In table 2, comparisons of people having the same background characteristics[2/] but differing PSE yield much the same mixed results noted earlier except that PSECRDT no longer increases job satisfaction and a wage penalty appears for SMPSENCR. When compared to high school graduates of similar background and residential characteristics,[3/] those having some sort of PSE have less advantageous occupational

---

1/ In the case of 1975-76 labor market success, 1976 location is not considered because it could not be determined where the person resided earlier in the period.

2/ SES, sex, minority-group membership, high school program, and high school grades.

3/ City size and state socioeconomic characteristics.

Table 2: Effects of PSE on Outcomes,
Background and Residence Location Controlled

	REGRESSION COEFFICIENTS										EQUATION	
	SMPSENCR		PSECRDT		VOCDGVOC		VOCDGCOL		ACADG2YR			
OUTCOME	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta	R^2	SEE
LMSUC56[1/]	NS		.03	.05	NS		.07	.04	NS		.009	.171
GOCSTAT6	2.6	.07	2.0	.04	6.1	.05	7.8	.04	8.9	.08	.070	17.5
CURRWGE6	-.10	-.03	NS		NS		NS		NS		.198	1.38
PAYSAT6	NS		NS		NS		NS		NS		.014	1.14
JOBSAT6	NS		NS		NS		NS		.24	.04	.022	1.02

See notes for Table 1.

[1/] Residence location not controlled, owing to lack of information for 1975 and intervening period.

status than previously estimated, but otherwise differ little from their non-PSE classmates.

Even at this late date--two or more years after the fact--dropouts were paying a penalty of about 10¢ an hour, on average, for foregone work experience and job seniority, despite their modestly elevated occupational status. The small advantage in overall job satisfaction enjoyed by holders of two-year academic degrees is slightly reduced, commensurate with the diminished status advantage, when they are compared to people of similar background and location. On the other hand, college vocational degree holders no longer appear less satisfied with their pay; negative satisfaction effects appear to be partly a function of the geographic distribution of college vocational degrees.

The reasons for these changes in estimated impact of PSE, which occur as PSE participants are compared to others of increasingly similar experience, are explored in detail in following chapters. There we see that PSE has both positive and negative consequences for employment experience. In general, intensive involvement with PSE tends to reduce work experience and job seniority. This negatively influences outcomes, often to the extent of counteracting the positive gains from PSE attainment.

As discussed in Chapter 3, holders of PSE credentials advanced no more rapidly in occupational status than the typical high school graduate. The reason was that the greatest

status gains went to those with low initial (1974) status. Holders of PSE credentials tended to have relatively high-status jobs at the outset of the period (1974-76), and rose little thereafter. When compared to high school graduates of equal initial status, PSE participants experienced a greater rise in status.

The dynamic analysis indicates that, excepting college vocational degrees, PSE credentials yielded substantial advantage in the form of faster wage growth. This poses a dilemma of interpretation, however, since the cross-sectional analysis shows no significant difference in hourly earnings in either 1974 or 1976. Equal 1974 earnings and faster wage growth should lead to higher 1976 earnings as a PSE benefit. A special investigation of this apparent inconsistency reveals that it is due to differences between the samples employed for the two analyses (see Appendix 3-2), and presents no major problem.

The contrasts between table 1 and table 2 show that some of the effect at first attributed to PSE was, in fact, due to differences in background or residence. The equations represented in table 1 allowed PSE categories to serve as indirect (and quite imperfect) "measures" of the characteristics correlated with each category of attainment. The equations represented in table 2 included direct, and much more adequate, measures of background and location characteristics. The result is to isolate employment effects

peculiar to PSE from those which are now attributed directly to background and residence.

The discovery of an earnings penalty for dropouts depends on this separation of effects. In table 1, dropouts' earnings were not shown to differ from those of high school graduates, whereas in table 2 the penalty appears. We can interpret this change as being due to offsetting influences: dropping out is harmful to earnings when we also consider the beneficial (and therefore countering) effect of other differences between those who attempt PSE and those who do not. Correlations between SMPSENCR, HSNOPSE,[1/] and the "control" variates show substantial differences in background, with those who became dropouts coming from more advantaged backgrounds. The superior social position of dropouts confers an earnings benefit sufficient to offset the penalty of losing work experience while unsuccessfully seeking PSE credentials.

d. Importance of foregone experience

The majority of this report is given to tracing the flow of PSE impact through intervening factors. If the analysis were to stop with the results given in table 2, we would have to conclude that PSE below the baccalaureate level confers few benefits in the short-run, as represented

---

[1/] High school only, a variate represented directly in correlation matrices to assess differences of the sort noted. See table 6 (App. 2-1) for relevant correlations.

by the situation some four years after high school graduation. At that time, the main benefit appears to be "better" jobs, as indicated by occupational status. Moreover, the benefits of PSE at this level appear to be discouragingly unpredictable for the individual, with very substantial margins of prediction error.

Detailed analysis of indirect effects holds out promise of greater benefit over the long run. High school graduates with PSE credentials at this level are, so to speak, fishing the same waters as those without PSE, confined to a range of jobs largely at or below the middle level of status. Those with PSE are not trained to hold high-status professional and advanced technical jobs, hence the benefit of their credentials is most likely to appear chiefly in the form of better working conditions and long-run employment stability. Some evidence of this has already been given in table 2, with positive employment, status, and job satisfaction effects noted for some types of PSE.

Tables 3 and 4 provide additional evidence of longer-term benefits. The "All Employees" portion of table 3 compares PSE with high school graduates having the same background and residential characteristics. In table 4, PSE effects are assessed when (in addition to the foregoing similarities) early work experience is set equivalent for PSE and non-PSE participants. The contrast between tables 3 and 4 is marked, indicating the severity of loss entailed

Table 3: Estimated Difference in Outcomes, PSE Participants vs High School Graduates with Comparable Background and 1976 Location

	LABOR MARKET SUCCESS[1]			GOCSTAT6			CURRWGE6	PAYSAT6	JOBSAT6
	Wtd N	%	Est	Wtd N	%	Est	Est	Est	Est
ALL	6851	100		5497 [2]	100				
HSNOPSE	3599.5	52.54	Base	2827.1	51.43	Base	Base	Base	Base
SMPSENCR	2069.7	30.21	NS	1660.6	30.21	2.6	-0.10	NS	NS
PSECRDT	808.4	11.80	.026	702.5	12.78	2.0	NS	NS	NS
VOCDGVOC	130.9	1.91	NS	104.4	1.90	6.1	NS	NS	NS
VOCDGCOL	59.6	0.87	.065	54.4	0.99	7.8	NS	NS	NS
ACADG2YR	182.9	2.67	NS	147.9	2.69	8.9	NS	NS	.24
VARIATE S.D			.1719			18.07	1.53	1.14	1.03
EQ. R^2			. 009			.070	.198	.014	.022
WOMEN	3365	100		2781	100				
HSNOPSE	1684.9	50.07	Base	1379.4	49.6	Base	Base	Base	Base
SMPSENCR	1004.1	29.84	NS	805.4	28.96	2.2	NS	NS	NS
PSECRDT	456.3	13.56	.025	408.0	14.67	NS	NS	NS	NS
VOCDGVOC	50.8	1.51	NS	38.7	1.39	NS	.45	NS	NS
VOCDGCOL	40.7	1.21	NS	38.4	1.38	8.6	NS	-.65	NS
ACADG2YR	128.5	3.82	NS	111.0	3.99	6.3	.42	NS	.30
VARIATE S.D			.1680			17.16	1.12	1.15	1.01
EQ.R^2			. 013			.121	.121	.025	.034
MINORITY[3]	1207	100		929	100				
HSNOPSE	687.6	56.97	Base	510.0	54.90	Base	Base	Base	Base
SMPSENCR	349.8	28.98	NS	278.3	29.96	NS	NS	NS	NS
PSECRDT	147.9	12.25	NS	123.1	13.25	6.3	NS	NS	NS
VARIATE S.D			.1895			18.30	1.51	1.20	0.83
EQ. R^2			NS			.119	.217	.033	.037

1. Includes all in labor force in October 1976. Location not controlled (see notes for Table 1).
2. Includes all employed in October 1976.
3. Omitted attainment categories had too few cases for analysis.

Table 4: Estimated Difference in Outcomes, PSE Participants vs. High School Graduates with Comparable Background, 1976 Location, and Early Work Experience

	LABOR MARKET SUCCESS[1]			GOCSTAT6			CURRWGE6	PAYSAT6	JOBSAT6
	Wtd N	%	Est	Wtd N	%	Est	Est	Est	Est
ALL	6851	100		5497 [2]	100				
HSNOPSE	3599.5	52.54	Base	2827.1	51.43	Base	Base	Base	Base
SMPSENCR	2069.7	30.21	NS	1660.6	30.21	3.3	NS	NS	NS
PSECRDT	808.4	11.80	.036	702.5	12.78	2.8	NS	NS	.13
VOCDGVOC	130.9	1.91	.044	104.4	1.90	7.7	NS	NS	.26
VOCDGCOL	59.6	0.87	.096	54.4	0.99	10.0	NS	NS	NS
ACADG2YR	182.9	2.67	.039	147.9	2.69	10	0.29	.23	.33
VARIATE S.D			.1719			18.07	1.53	1.14	1.03
EQ. R^2			. 027			.077	.203	.022	.027
WOMEN	3365	100		2781	100				
HSNOPSE	1684.9	50.07	Base	1379.4	49.60	Base	Base	Base	Base
SMPSENCR	1004.1	29.84	NS	805.4	28.96	2.7	NS	NS	NS
PSECRDT	456.3	13.56	.033	408.0	14.67	2.6	0.19	NS	.14
VOCDGVOC	50.8	1.51	NS	38.7	1.39	NS	0.56	NS	NS
VOCDGCOL	40.7	1.21	.073	38.4	1.38	10.5	NS	-.52	NS
ACADG2YR	128.5	3.82	NS	111.0	3.99	8.1	0.58	NS	.37
VARIATE S.D			.1680			17.16	1.12	1.15	1.01
EQ. R^2			.020			.126	.131	.030	.036
MINORITY[3]	1207	100		929	100				
HSNOPSE	687.6	56.97	Base	510.0	54.90	Base	Base	Base	Base
SMPSENCR	349.8	28.98	NS	278.3	29.96	3.3	NS	NS	NS
PSECRDT	147.9	12.25	NS	123.1	13.25	6.8	NS	NS	NS
VARIATE S.D			.1895			18.30	1.51	1.20	0.83
EQ. R^2			. 032			.120	.227	.039	.045

1. Includes all in labor force in October 1976. Location not controlled (see notes for Table 1).
2. Includes all employed in October 1976.
3. Omitted attainment categories had too few cases for analysis.

by limited early work experience. It is especially significant that, in the equation, "early work experience" is defined only by the number of weeks worked from 1972 to 1974; no consideration was given to the kinds of jobs held or other qualitative features of the early experience. Even with so rough a measure, it is apparent that lost experience is costly.

With the effect of foregone experience nullified (table 4), it appears that all forms of PSE credentials (dropouts excluded) improve success in job-holding during 1975-76, relative occupational status is enhanced, most PSE yields enhanced overall job satisfaction, and that holders of two-year academic degrees earn higher wages and are more satisfied with their pay.

One may ask why these differing results convey hope for future benefits. The PSE participants, after all, share the labor market with both those who have more early experience and those with the same amount. There are several grounds for optimism: (1) PSE credential holders, and dropouts as well, are better placed in the occupational structure. On average, the jobs they hold are of higher status; by definition, people in these jobs have greater average education and annual earnings than those of the lower-status jobs held by the high school graduates. If long-term expectations tend toward the occupational average, the better-placed PSE credential holders can expect greater earnings so long as they maintain the status

differential. Table 5[1/] indicates that by far the most important determinants of status at a given time are (a) past status and (b) job content, both of which are, in this sample, enhanced by PSE credentials. Presuming this relationship to be stable, there is good reason to suppose that the status differential for PSE credential holders will be maintained.

(2) Apart from maintenance of early placement advantage, we may well suppose that differences in very early experience will lose force as time passes, so that when both high school graduates and PSE credential holders have been in the labor force for (say) ten years the foregone early experience will be of little importance. At four years out of high school, the loss of two years experience may mean that the PSE credential holder has only half as much experience as his competitor with only a high school diploma. But at 10 years, he will have 80 percent as much, and a credential to boot. As total time in the labor force increases, the experience differential between PSE participants and non-participants will diminish toward a point of no appreciable difference.

In later analyses, we will see that influence of early work experience tends to be diminished by the influence of more recent experience. Though the latter is partly dependent on the former, it is also affected by other determinants, among which are PSE credentials. As foregone work experience

---

[1/] Appendix 1-1.

immediately after high school recedes into the distant past, its impact on very recent experience will diminish and cease to act as a drag on those with PSE credentials. Their early occupational status advantage should be maintained. The result to be expected is that the long run benefits flowing from PSE credentials will be greater than those apparent in the early work career.

e. Mediation of PSE influence

As I have suggested, PSE effects are less likely to be the result of direct influences on outcomes than consequences of numerous indirect influences exerted on other factors (like the amount of early work experience or initial occupational status) which themselves exert direct or indirect influence on outcomes. That is, PSE effects are mediated by a system of intervening influences.

The mediation of PSE effects is indicated by comparison of table 4 with the appropriate sections of table 5.[1/] Table 5, for example, shows the final equation for 1976 occupational status. There, numerous control variables for work experience from October 1974 to October 1975, for workplace and job characteristics in 1976, and for job seniority (longevity) and part-time employment have been introduced in addition to those in the equations in table 4. Obviously, these controls leave us comparing people who, despite differing

---

[1/] Appendix 1-1.

exposure to PSE, are in highly similar work circumstances. Under those conditions, occupational status advantages (of a rather small order) exist only for those with a non-degree credential and for two-year academic degree holders. The larger and more pervasive advantages shown in table 4 have, for the most part, "disappeared." What has happened?

The earlier effects, which are genuine, have been displaced by measures of experience and job circumstances for which PSE variates previously served as proxies. The effects, then, are for the most part "channeled" through one or more of the variates introduced between the equations for table 4 and those for table 5. The "disappearance" or reduction of significant PSE coefficients shows that PSE credentials indirectly affect 1976 status, through their influence on 1974 status and various aspects of employment experience thereafter. With few exceptions, there is no status "bonus" for having the credential per se; rather, the credential is a ticket to the kinds of experiences and job content which confer higher status.[1/]

f. Variable PSE effects

It is clear in these tables that different types of PSE exert different influences on employment outcomes.

1/ It seems likely that even the remaining direct effects for PSECRDT and ACADG2YR would be eliminated if it were possible to distinguish, say, the kind of paperwork on which time is spent, rather than just the relative amount of time claimed. There is, after all, a difference between the job status of a filing clerk and an insurance claims adjuster.

Among these, perhaps the most interesting is the contrast between college vocational degrees (VOCDGCOL) and the two similar credentials, vocational degrees from vocational schools and two-year academic degrees. The first of these shares subject or curriculum (vocational training), the second, source (colleges).

The college vocational degree (a) affords much greater protection against unemployment in times of economic distress and (b) yields status benefits midway between those of the related[1/] degrees (table 1). These differing consequences may rest on differing curricula as well as the relative rarity of the three degrees. On average, avowedly vocational training provided by colleges is probably more academically demanding than the typical vocational school course, but less so than the average academic curriculum. Such differences could explain the intermediate status benefit and, in conjunction with the much more limited supply of college vocational degrees, may explain the greater employment security they afford.

The standardized (beta) coefficients indicate that if the three degrees were equally common (i.e., had the same standard deviation in this sample) and their recipients were of similar background and location, college vocational degrees would have about the same effect on status as vocational

---

1/ That is, vocational degrees from vocational schools and two-year academic degrees.

school degrees, and less than two-year academic degrees (table 2). They would still, however, be slightly more helpful than either in terms of labor market success. These coefficients indicate that much of the observed difference in status and employment effect is attributable to the scarcity of college vocational degrees among people of the sort studied here. In part, it is a straightforward matter of limited supply increasing benefits: a flood of college vocational degrees could be expected to decrease the relative benefit of this type of PSE.

Variations: Some results of sub-sample analyses

To complete the introductory discussion, I turn now to the analyses for two groups traditionally disadvantaged in employment--women and members of minority groups. Unfortunately, there are so few minority degree holders that the analysis must be incomplete;[1/] nevertheless, it is possible to make some judgements about the likely effects of degrees for minority-group members.

The basic data are to be found in tables 3, 4, and 5, where coefficients of estimated impact are given for equations with varying degrees of control over confounding influences. Note (table 3) that women are slightly more homogeneous

[1/] A previous paper, using the Class of 1972 data file, (Selby and Froomkin, 1979) indicated that minority group members were more likely than others to delay PSE entry and to prolong enrollment by less-than-full-time attendance. This, and lower incidence of PSE participation, explains the paucity of minority degree holders available for study here. Many will have received degrees after 1974.

than the general sample with regard to labor market success and occupational status, and considerably more homogeneous in hourly earnings. Minority-group members are more variable than the general sample in labor market success and pay satisfaction, and much less variable in overall job satisfaction.

a. Women

With controls for background and location effects, women differ in several respects from the whole sample. First, there are no status benefits for either non-degree credentials or vocational school degrees. The contrast with the general effect is particularly marked for the latter credential, since fairly substantial status benefits were found in the total sample. Although women's status benefits resemble the pattern for the whole sample, they are mostly smaller. This may be due to the narrower status range of occupations within which women worked. Second, both two-year academic degrees and vocational school degrees yielded substantial hourly earnings benefits for women and no penalty was associated with dropping out. The difference in wage effects may rest on women's more restricted range of variation in wages, as compared to either the total sample or the (mixed-sex) minority sample. Within a population of workers confined to a narrow, and generally low, pay scale, some forms of PSE can boost wages substantially.

Women with vocational school or two-year academic degrees get wage benefits from them, while women with college

vocational degrees do not. Under these conditions, it is probably no coincidence that women with college vocational degrees are markedly less satisfied with their pay. Their dissatisfaction could result from comparisons with other women who have similar training, but receive wage benefits they do not gain.

When the equation is modified by addition of a control for early work experience (table 4), women PSE participants are compared only to similar women who lack PSE but have equal experience. This removes the effect of limited experience among PSE participants, and increases their estimated benefits. This result parallels the effect of adding the control for experience to the equation for the total sample, but reveals larger and more inclusive benefits for PSE among women.

The earnings advantage for women with vocational-school or two-year academic degrees is much enhanced by the added control. It also reveals an earnings advantage, not observed in the previous equation, for women with non-degree credentials. The inclusion of this group considerably increases the proportion of women gaining wage benefits from PSE.

Women with college vocational degrees still do not share in the wage advantage linked to other credentials. However, with the damaging effects of limited experience removed, their status advantage is enhanced and a substantial advantage

in labor market success appears. In these respects, women with college vocational degrees have greater benefits than those with other credentials. These special benefits do little to offset their marked dissatisfaction with pay, which, though reduced in the modified equation, is still marked in comparison to other women.

The broadest generalization from these comparisons is that PSE affects women's work experience differently, in some respects, than it does in general. Advantage in labor market success and occupational status is smaller, but wage and job satisfaction advantages are greater. More narrowly, it is also evident that effects of a college vocational degree contrast sharply with those of related degrees, whereas in the whole sample they do not.

b. Minority groups

Among members of minority groups, a non-degree credential was much more valuable for enhanced occupational status than it was in general. It yielded no benefits for labor market success or job satisfaction (in general such a credential enhanced both), but no wage penalty was attached to dropping out of PSE, as it was for the whole sample. Although minority-group members did not share in the small status advantage for SMPSENCR when early experience was uncontrolled, they received the same status benefit when experience was controlled. Loss of early experience was apparently a more severe disadvantage for minority dropouts.

There is evidence in the final equations for the whole sample (table 5) that minority-group members had both lower status and lower wages than non-minority workers even when extensive controls for other factors, particularly PSE, are included. Among women, the minority disadvantage is present for occupational status but the wage disadvantage is not. This suggests that minority males are the main losers where wages are concerned.

On the whole, it appears that PSE involvement was much less rewarding for minority group members than for the whole sample, despite larger status benefits for holders of non-degree credentials. As shown in table 5B, the average occupational status among minorities was about 4 points lower than for the general sample, which suggests that the non-degree credential served chiefly to bring its holders up to the average for the group as a whole--not to provide superior placement.

Summary

The complexities touched on here serve warning that simple generalities about the benefits of postsecondary education at levels below the baccalaureate are unwarranted.[1/] Whether a given student will benefit from such PSE is uncertain,

---

1/ The author recently heard a radio commercial, sponsored by the Office of Education, urging postsecondary technical training at this level. The thrust of the message was that many and varied benefits, particularly in the form of higher earnings, could be expected. In light of the results reported here, such broad-gauge appeals seem inappropriate.

depending on a host of factors. Not the least of these is what form of PSE is undertaken and, not surprisingly, whether PSE experience bears fruit in the form of a credential. Those making policy for sub-baccalaureate PSE must approach the matter with due regard for the potential pitfalls of variability and uncertainty.

CHAPTER TWO

DIFFERENCES IN WORK EXPERIENCE, 1975-76

This study addresses two areas of concern; the first portion is a cross-sectional analysis of differences among people with various types of postsecondary education in October 1976. The second, presented in Chapter 3, is a dynamic analysis of the changes in types of jobs held and wages earned by people employed in both October 1974 and October 1976.

A. Descriptive Background

(1) Samples

The weighted number of cases in the main cross-sectional sample is 5,497, with an average weight of about 1.45. This means that roughly 4,000 individual respondents provided data which was complete and usable for this analysis. Samples used for other analyses consist of (a) 6,851 weighted cases who were in the labor force as of 1976 (analysis of labor market success) and (b) 4,075 weighted cases who were employed in both October 1974 and October 1976 (analysis of change in status and wages).

Because of the selectivity of employment status, the dynamic sample tends to differ somewhat from the cross-sectional samples. Most important, in the two cross-sectional groups approximately 52 percent had no postsecondary education, while in the more restricted dynamic sample only 47

percent had none. The dynamic sample had somewhat different labor market experience, came from slightly higher SES families, and included some 3 percent fewer members of minority groups. The differences are not so great as to make the analyses wholly non-comparable, especially since there are controls in all equations for background variables as well as post-secondary education.

(2) Background Control Variates

Background variables included socioeconomic status score, sex, minority-group membership, high school grades, and high school program. These characteristics are likely to affect both postsecondary education and employment. The SES scale has a mean of zero, for the whole NLS sample, and is based on a number of indicators of socioeconomic status.[1/] The mean status score for the analysis sample was -.177, indicating that the sample members are typically working-class in origin.[2/] Both sexes were about equally represented. The minority composition was approximately 17 percent, much like the national average. (In this report, the term "minority" includes Blacks, American Indians, Asian-Americans, persons who identify themselves as of Hispanic background, and those who placed themselves in a residual category.)

[1/] The SES score is described in Chapter 5.

[2/] The means cited here are for the main cross-sectional sample. See App. 5-2 for others.

High school grades were self-reported in letter form; I have coded them with an "A" equal to 7 and "below D" equal to 1. On this scale, the average high school grade was 4.31, indicating roughly a "B-" average. Although this may seem high, grading practices at the time covered by the data tended to provide high grades and this is probably a fairly accurate report of the actual grades. Three categories of high school program were coded. Members of the analysis sample had the following breakdown: 22 percent in academic programs, 38 percent in vocational programs, and 40 percent in general programs.

(3) Residential Control Variates

Several variables were included to control for the 1976 residence of the sample members, on the assumption that these would influence both occupational status and wages (especially) in 1976. There are seven indicators of location. Six are principal components derived from a factor analysis of a large quantity of descriptive data for individual states. The seventh is an index of 1976 city size. The mean city index was 3.89, which translates into a city size of about 49,000 people. I will forego a description of individual factors for the states, but suffice it to say that Missouri comes closest to representing the mean factor scores for the sample. We might even go so far as to say, though only figuratively, that the location of the typical respondent in this sample might be somewhere in southeastern Missouri

(close to its borders with Illinois, Kentucky, and Tennessee) in a city of about 50,000 people.

(4) Work History Control Variates

The work history of the sample is indicated by several variates covering different periods of time. The first period is described by (a) the number of weeks worked from 1972 to 1974 (an average of 85 weeks out of the 104-week period), (b) the occupational status of the job held in 1974 (an average of approximately 43), and (c) the wage (in 1974 dollars) of that same job, at an average $3.28 an hour.[1/]

The year October 1974 to October 1975 was a period of severe recession with especially high rates of unemployment among youths; therefore, the work history indicators for that period are particularly important. The estimated number of employers during 1974 to 1975 was about 1.3; the average number of weeks worked from 1974 to 1975 (47 of 52) shows increasing experience as well as a rough measure of typical success in the labor market during that period.

The work history for the final period is covered in greatest detail. A special index of labor market success during 1975 to 1976 was used in the study. It indicates the employment success of a respondent in comparison with that of others who had participated in the labor force for an

---

[1/] These averages include people who were not employed in 1974, scored zero on both. Using an estimated unemployment rate of 10.5 percent, the means for those employed in 1974 can be estimated at about $3.63 an hour in jobs rated about 48 on the status scale.

equal number of weeks during the 1975-76 period. The number of weeks worked by a person participating for a specific number of weeks was divided by the median for that level of participation, giving his work experience as a percentage of the median. The index mean for the sample was .958, showing that most departures from average involved those who were less successful than others with comparable participation. In October 1976, approximately 10 percent of the sample worked for the government, six percent were part-time workers, and the average organization employed between 70 and 100 people (in Table 18, App. 5-2, the index mean is 4.26). Job longevity (seniority) averaged about 27 months, and the number of subordinates was fewer than three.

Occupational status was close to the mid-point of the scale at 48.8, the average wage was $4.20, pay satisfaction was at .73 (indicating tepid satisfaction), and overall job satisfaction likewise at .90.[1/]

The three task content measures require explanation. On a scale ranging from 10 through 40, the respondents indicated what portion of their normal work time they spent dealing with things, with ideas, and with paperwork. The low end of the scale indicates "none;" a score of 20 equals "very little;" 30 indicates a response of "some," and the highest

---

[1/] The satisfaction scales equate a score of 1.0 with the verbal description "satisfied," a score of 2.0 with "very satisfied," and their negative equivalents with similar degrees of dissatisfaction.

point (40) indicates "a great deal." On this scale, the mean for time spent with things was 32½, for time spent with ideas, 29, and for time spent on paperwork about 28. These means are of less interest than the variation. The greatest variation (indicated by the coefficient of variability) is for paperwork with a CV of .41, while dealing with things (CV = .31) and dealing with ideas (CV = .33) are similarly low.

(5) Work History Summary

To summarize this work experience, a typical sample member worked most of the available time in both early and later periods; in 1974, he had a blue-collar or clerical job at which he made about $3.60 an hour;[1/] he had some difficulty, compared to many, in holding a job during the period 1974 to 1976. For the most part, his employment had been fairly stable, though he may have had more than one employer.

In 1976, he was most likely to be working full-time for a rather small private organization; he earned $4.20 an hour in a job of mediocre status. He had held his job for a little over 2 years, and divided his work time among working with things, ideas, and paperwork. He had few if any subordinates, and was mildly satisfied, but definitely not enthusiastic, with his pay and the job as a whole.

Table 6[2/] lists simple correlation coefficients

[1/] Estimated; see note p. 31.

[2/] Appendix 2-1.

between PSE category membership and the control and outcome variates. The coefficients tend to be small, owing mainly to small proportions of sample members in most PSE groups. Most, however, are statistically significant because the sample is large.

I recommend that readers examine Table 6 in some detail to note differences in the characteristics and experience of people in the five different categories of postsecondary education. It is clear from the table that in discussing two-year PSE we are not talking about a quantity or level of education, but rather a diverse set of educational processes with distinctive types of students and varying results in terms of labor market experience. The characteristics of students in these several categories are different and, as the analysis which follows shows, the ways in which various programs affect labor market experience also differ.[1/]

B. The Analyses

(1) Major Variates

The cross-sectional results reported here are divided into two parts. The first is an analysis of the impact of PSE on labor market success for all sample members who were in the labor force in October 1976; the second concerns four other outcomes, and covers only those employed in the reference month. The four other outcomes are: occupational status of

---

[1/] For purposes of analysis, dropping out (SMPSENCR) is treated as a program, as is non-participation in PSE.

the job held in 1976, hourly earnings in that same job, satisfaction with pay and fringe benefits, and satisfaction with the job as a whole.

These employment outcomes are related, as dependent variables, to several categories of postsecondary education (PSE):

1. Participation between high school and October 1974, but lack of any claimed credential, here called "dropouts" and designated by the variable name SMPSENCR.[1/]
2. Possession of a certificate, diploma, license, or other non-degree credential, wherever and however obtained between high school and October 1974 (PSECRDT).
3. Possession of a two- or three-year vocational degree, granted by a vocational school between high school and October 1974 (VOCDGVOC).
4. Possession of a two- or three-year vocational degree, granted by a college no later than October 1974 (VOCDGCOL).
5. Possession of a two-year academic degree (e.g., an Associate in Arts) earned no later than October 1974 (ACADG2YR). These degrees may represent semiprofessional or technical curricula which (like engineering or business administration at the B.A. level) have a vocational orientation.

[1/] A glossary of all variate names is given in App. 5-3.

(2) Comparison Group and Estimated Effects

The comparison group consists of sample members who graduated from high school in spring 1972, and thereafter did not participate in PSE or obtain any credentials. Background factors which affect postsecondary participation are controlled in all equations.[1/]

Effects of PSE are judged by regression coefficients for each PSE category. These show the difference in mean outcome value between the comparison group and members of the specific PSE category. Most PSE effects are positive, and are referred to as benefits; the few negative effects are called penalties.

Since benefits for every PSE category are defined in terms of advantage over comparable high school graduates, comparisons may be made among types of PSE participation. PSE categories with larger coefficients yield greater benefit than those with smaller, relative to the common comparison group.

(3) Procedures

The analyses are based on a series of regression equations in which variates, or blocks of variates, are entered successively so that it becomes possible to trace the impact of postsecondary education as we add more control variates

---

[1/] Except "trial" equations performed to establish a basis for discussion. Effects of background factors are thus separated from those specific to PSE differences among people with equivalent backgrounds.

to increase the similarity between PSE participants and non-participants. This mode of analysis makes possible some insights on how postsecondary education exerts its influences, not merely whether it does. This is a distinct advantage because much of the impact of postsecondary education on labor market outcomes is exerted indirectly.

The analysis of PSE impact on 1975-76 labor market success is discussed in great detail as an example of this procedure. It will show how we know that the major impact of postsecondary education is indirect, channelled mainly through (a) lost early work experience (which is a function of PSE participation during the first two years after high school) and (b) enhanced early occupational status.

C. Impact on 1975-76 Labor Market Success

The initial analysis examines the effects of post-secondary education on labor market (employment) success during the year 1975 to 1976, just preceding the reference week of October 1976 for which the cross-sectional analyses have been performed.

(1) Final Equation

Table 7 presents the final equation of the analysis. It covers all sample members who were in the labor market in October 1976; this includes both those who were employed and those who were unemployed at that time.

There were modest benefits from both college vocational degrees and non-degree credentials such as certificates

Table 7: Factors Influencing 1975-76 Labor Market Success

DEPENDENT VARIABLE: LMSUC56

	REGRESSION COEFFICIENTS - - Unstandardized (B)	Standardized (Beta)	Std Err of B	Value of 't'
SES	.0005	.004	.0015	0.367
MALE	-.0041	-.012	.0043	0.952
MINORITY	.0081	.018	.0052	1.566
HSGRADES	.0013	.010	.0016	0.781
HSACAD	-.0209	-.051	.0053	3.917*
HSVOC	-.0056	-.016	.0045	1.250
SMPSENCR	.0018	.005	.0047	0.381
PSECRDT	.0248	.047	.0063	3.915*
VOCDGVOC	.0178	.014	.0144	1.232
VOCDGCOL	.0691	.037	.0211	3.281*
ACADG2YR	.0142	.013	.0127	1.124
WKSWRK24	.0003	.046	.00009	3.698*
GOCSTAT4	.0005	.056	.0001	4.544*
CURRWGE4	-.0028	-.031	.0011	2.526*
NMEMP45	.0039	.017	.0026	1.517
WKSWRK45	.0053	.348	.0002	29.291*
Intercept:	.6450			

Multiple R:	.381	LMSUC56 Mean:	.9386
		S.D.:	.1719
R^2:	.145	C.V.:	.183
S.E.E.:	.159	Wtd N =	6851

NOTE: '*' indicates (nominal) p = .025. Values based on unrounded values of "B" and its standard error. See Ch. 5 for discussion of unusually high level of significance used.

and diplomas, but the most influential factor is the number of weeks worked during 1974-75. In comparison with this recent experience, no other elements in the table exert an important impact on labor market success.

Probably the most important observation about the equation is the fact that only 14½ percent of the outcome variance is explained, even when recent work experience is included. This indicates that labor market success is not strongly related to the included predictors, particularly to PSE. Postsecondary education, then, is not in general a good hedge against unemployment.

The inclusion of many control variates in the equation requires that the postsecondary credential holders be similar in a great many respects to the high school graduates with whom they are compared, almost certainly more similar than one would find in the "real world." Since the work experience of those without postsecondary participation is rather unlikely to match that of the PSE credential holders so closely, a more relevant comparison can be made if we control only for background variables.

(2) Control for Background Alone

Table 3 (Ch. 1) shows the results at a stage of the analysis when nothing but background is controlled.[1/] In those circumstances there are small effects for college

---

[1/] Note that (in Table 3) residential location is not controlled for the labor market success equations.

vocational degrees and non-degree credentials. The coefficients for PSE at this early stage are substantially the same as those in the final step where many influential factors are controlled. This is due principally to the offsetting effects of limited early work experience (with a negative influence), slightly enhanced initial occupational status (positive influence), and a less marked positive influence from having had fewer employers during the preceding year.

(3) Influence of Intervening Variates

Tables 8A through 8F (App. 2-2) present equations which permit a trace of PSE impact on 1975-76 labor market success, as it is transmitted through a network of intervening variates. The series of equations, which ends with the final step in Table 7, takes the following form:

8A. WKSWRK24 = f (Background + PSE)

8B. GOCSTAT4 = f (Background + PSE + WKSWRK24)

8C. CURRWGE4 = f (Background + PSE + WKSWRK24 + GOCSTAT4)

8D. NMEMP45 = f (Background + PSE + WKSWRK24 + GOCSTAT4 + CURRWGE4)

8E. WKSWRK45 = f (Background + PSE + WKSWRK24 + GOCSTAT4 + CURRWGE4 + NMEMP45)

8F. LMSUC56 = f (Background + PSE + WKSWRK24 + GOCSTAT4 + CURRWGE4 + NMEMP45 + WKSWRK45)

Each of the six equations is performed blockwise, with variates introduced in the order shown.[1/]

[1/] After introduction of the five PSE variates as a block, the remainder enter stepwise, i.e., in "blocks" of a single variate.

This procedure allows us to separate direct effects of PSE from effects transmitted indirectly via PSE impact on intervening variates. The introduction of background variates in the first step of each equation serves to separate effects of PSE (on dependent variables) from those of antecedent variates which may affect both PSE and employment experience.

As an illustration of the way in which these equations reveal the process by which PSE influence is transmitted through intervening variates to 1975-76 labor market success, the foregoing series of equations is discussed in detail below.[1/] The reader is guided through this maze by paragraph labels which refer to equations (8A, 8B, etc.) and steps within equations (8E-1, 8E-2, etc.).[2/]

Eq. 8A-2 demonstrates that, on average, PSE participation markedly reduces early work experience, as measured by the number of weeks worked from October 1972 to October 1974.

Eq. 8B shows that there are benefits from PSE in the form of slightly enhanced 1974 occupational status, that is, for one of the first jobs held after PSE terminates. In Eq. 8B-2 these effects are modest, but when a control for

---

1/ In discussion of other major outcomes, later in this chapter, most details of interpretation are omitted. The analyses, however, rest on the same procedure for each.

2/ In all equations, the first step introduces only the background controls, and is not discussed separately. The "trace" of PSE impact begins with step 2.

early experience is added (Eq. 8B-3), the impact of PSE on occupational status rises very substantially because the handicap of limited early work experience has been nullified. It is clear that early occupational status benefits from PSE are depressed by the accompanying loss of early work experience.

Eq. 8C shows there is no significant impact of post-secondary attainment on the 1974 wage, regardless of what controls are added in the several steps.

From Eq. 8D-2 we find that those who were PSE drop-outs and those with vocational school degrees were less stable than comparable high school graduates in their 1974-75 employment. That is, they had more different employers during that year. Later steps of the analysis show that this tended to reduce 1975-76 labor market success.

When a control for early work experience is added (Eq. 8D-3), the direct impact of these types of PSE is reduced. In addition, we then obtain a significant negative coefficient for college vocational degrees, indicating fewer employers (greater employment stability). Early work experience again emerges as a significant mediating variable. The decline in coefficients for SMPSENCR and VOCDGVOC and the appearance of a negative effect of the college vocational degree indicates that part of the impact earlier estimated (in Eq. 8D-2) was due to reduction of early work experience by PSE.

The slight rise in number of employers which is observed when we introduce a control for occupational status

(Eq. 8D-4) indicates the stabilizing effect of the enhanced status associated with postsecondary training. No change in PSE coefficients occurs when a control for 1974 wages is added (Eq. 8D-5), because PSE is not directly related to 1974 wages.

In sum, Eq. 8D shows that the impact of PSE on employment stability in 1974-75 is mediated by both early work experience and 1974 occupational status, but not by 1974 wages.

Eq. 8E-2 shows that PSE dropouts worked slightly fewer weeks, in 1974-75, than high school graduates of similar background. Other PSE categories have no significant impact on this recent experience.

A control for early work experience (Eq. 8E-3) eliminates the penalty for college dropouts and reveals slight benefits for holders of PSE credentials. Early experience, therefore, mediates the impact of PSE on more recent work experience.

Introduction of a control for 1974 occupational status (Eq. 8E-4) slightly reduces the coefficients for PSE variates, indicating that initial status intervenes between PSE and later job experience.

There is no appreciable change in PSE impact upon introduction of a control for the 1974 wage level (Eq. 8E-4), but a control for the number of employers (Eq. 8E-5) indicates the mediating influence of that factor.

The results of equations 8A-8E can be summarized as follows:

Lost work experience while in PSE tends to penalize participants by reducing the number of weeks worked during 1974-75. This tendency, however, is offset by benefits from both enhanced 1974 status and greater employment stability during the year. Consequently, those with PSE credentials are neither harmed nor helped by them so far as 1974-75 work experience is concerned.

Dropouts, on the other hand, lacked the requisite offsetting benefits because their 1974 status was not markedly higher than the average for high school graduates and they had lower employment stability. Consequently, they suffered a slight employment penalty during 1974-75.

A trace through the steps of Eq. 8F shows the effects of intervening variates upon the link between PSE and 1975-76 labor market success. Given only similar background, there is a slight positive effect for non-degree credentials and college vocational degrees (Eq. 8F-2). This increases with a control for early experience (Eq. 8F-3), and positive effects of vocational school degrees and two-year academic degrees appear. The detrimental effect of foregone early work experience on subsequent labor market success is obvious.

A control for 1974 status (Eq. 8F-4) eliminates the effects for vocational school degrees and two-year academic degrees, indicating that their impact on labor market success

is entirely due to their contribution to enhanced occupational status. Coefficients for the other two types of credentials are also somewhat reduced, indicating that a portion (but not all) of their influence is due to their contribution to 1974 status.

As before, a control for 1974 wage (Eq. 8F-5) does not affect the impact of PSE variates.

The same may be said for the number of 1974-75 employers (Eq. 8F-6), excepting the appearance of a small positive benefit from holding a vocational school degree. The impact of such a degree is mediated by its effects on employment stability.

We saw, in Eq. 8D, that holders of vocational school degrees had more employers than comparable high school graduates. The increased number of employers results in reduced work experience during that year (Eq. 8E), and this tends to eliminate any direct employment success benefit from holding a vocational school degree. Reduced work experience during 1974-75 decreases the employment benefit from non-degree credentials and college vocational degrees for similar reasons.

Figure 1 (A through F) graphically portrays the network of influences described by these equations. The main network of influence is the same in all subdiagrams of Figure 1; the differences among them are in the influence of the several PSE categories on mediating variates.[1/]

[1/] Background factors are controlled in all the equations underlying Fig. 1. See Appendix 2-3.

The diagram shows that the major flow of influence is from experience in the early period (1972-74) to recent experience (1974-75), then to 1975-76 labor market success. High 1974 occupational status tends to increase employment stability and work weeks during 1974-75; it also directly provides a small employment success benefit. Early work experience likewise influences success both directly and indirectly.

The negative effect of PSE attendance on early experience initiates a process which tends to reduce subsequent labor market success. These negative influences are only partially offset by positive effects derived from PSE contribution to enhanced occupational status.

The most interesting aspect of the system of influences is that PSE affects labor market success in many ways, but the effects are exerted indirectly through a network of intervening factors and tend to counteract each other. The equation shown in Table 7 masks PSE effects because it shows only the final product of these countervailing influences.

(4) Discussion

The chief conclusion to be drawn from this analysis is that in the early career, work experience lost during postsecondary education limits subsequent employment success to a level little or no greater than that for high school graduates. Because of greater work experience, gained while their peers are in school, high school graduates are no more likely to suffer unemployment than most participants in

postsecondary education.

There is a tradeoff, at this early career stage, between on-the-job experience and postsecondary education. Whether this tradeoff would persist over a greater span of time or is peculiar to the times for which these data apply cannot be determined from the data at hand.

We know, however, that in a setting of turbulent economic conditions and at a fairly short remove from high school graduation, the choice between directly entering the job market and getting postsecondary education is something of a tossup so far as success in finding and holding employment is concerned.

These results tend to confirm those of an earlier study in which I found it was not possible to distinguish employed from unemployed members of the class of 1972 on the grounds of their postsecondary training (Selby, 1979). A more refined set of PSE attainment categories than those used in the previous study and the passage of two more years account for the present finding of some benefit from certain PSE credentials. Their contribution, however, is not a major one and there is much uncertainty attached to the underlying equation. In general, then, postsecondary education did not prove a major advantage in avoiding unemployment during 1975-76.

It seems worthwhile to emphasize, however, that two types of PSE yield modest benefits even when foregone early work experience depresses PSE effects. College vocational

degrees and non-degree credentials retain their superiority over other forms of PSE throughout the series of equations and are the only sources of direct employment benefit in the final equation.

The data provide no indication as to the source or exact nature of the non-degree credentials, but it may be that certificates and licenses are related to particular kinds of early employment. They may, for example, be earned in on-the-job training programs or apprenticeships; in that case their benefits might be attributed to specific work experience if there were pertinent information.

Lacking such information, we can only say that the sort of credential which does not involve long commitment to formal classroom training may be of greater value than others that do require such training.[1/] Although possession of a non-degree credential reduces early work experience, as does all PSE, such credentials involve the least lost time, hence the least penalty for inexperience.

The holders of college vocational degrees constitute only 1 percent of the analysis sample; they are rather rare birds, and they stand out among the holders of formal degrees as having markedly better labor market success. Such a degree overrides even the handicap of foregone early experience

---

[1/] Olson (1978) reports finding that brief training was found superior to extended training in private postsecondary vocational schools. He also notes that brief training may result from departures to accept offered jobs.

in providing its holders with improved employment success. Together, these facts suggest that a college vocational degree provides skills which can be sold fairly easily in the labor market.

To increase the relative employment success of people who participate in postsecondary education, some way of increasing their work experience while in school appears to be indicated.

Whether or not the nature of that work would affect the outcome (that is, whether "make-work" or part-time jobs would be as useful as legitimate full-time jobs) is an open question. Recall, however, that no distinctions among kinds of early work experience were made in these equations; the effects were based solely on the number of weeks worked. This suggests that whatever the type of work experience, having held any job helps high school graduates, and lack of experience detracts from the success of those with short schooling. It may suffice to make work of any kind available to PSE participants.

The effect of foregone early experience is surprisingly persistent. Although much of its influence is indirect, through its impact on more recent work experience, early experience directly affects employment success at least two years later.[1/] Whether or not such a direct effect persists longer is an open question.

It is fitting to close this discussion of PSE

[1/] See Fig. 1, Appendix 2-3.

influence on labor market success on a more optimistic note. I remind the reader that when the effects of background and early experience are anulled by appropriate controls, there are across-the-board employment benefits for holders of all PSE credentials (some reasonably large).

To be sure, these benefits disappear when credential holders are compared to high school graduates with highly similar overall work histories. But in everyday comparisons, it is unlikely that many high school graduates will have closely similar experience, because they lack some of the early benefits--particularly, enhanced occupational status--which flow from postsecondary credentials.

Foregone early work experience is a serious problem for PSE participants, but its harm may be short-lived. Limited work experience is the factor which depresses employment advantages from PSE; it seems likely that as time passes, experience grows, and those early years become unimportant to employers, the sub-baccalaureate PSE credential will emerge as an important source of employment security.

D. Impact on 1976 Employment Outcomes

The next stage of the analysis covers processes by which effects of postsecondary education are transmitted to major outcomes such as occupational status and wages in 1976. The analysis uses a subsample of people who were employed in October 1976.[1/]

[1/] These analyses exclude those unemployed in October 1976, who were included in the analysis of 1975-76 employment success. For those employed in October 1976, there were no PSE effects on labor market success.

(1) Unmediated PSE Influence

Table 3 (Ch. 1) lists effects estimated for occupational status, hourly earnings, satisfaction with pay, and overall job satisfaction. In those equations, effects of background and 1976 residence are controlled, but there are no controls for other influences. Table 3 thus represents social comparisons as they might ordinarily be made, with factors other than background and location allowed to vary as they would in the everyday world.

(a) 1976 occupational status

Under these conditions, PSE provides fairly substantial status advantages for those with two-year college degrees, both vocational and academic (Table 3). However, the small proportion of outcome variance explained means that we do not greatly improve predictive capability by using the equation. One would not be justified in telling a prospective student, on the basis of this equation, that he or she could be certain of higher future status by completing a degree.

(b) 1976 hourly earnings

The hourly earnings equation, in contrast, is notable chiefly for the absence of effects for PSE, except that dropouts pay a penalty of roughly ten cents an hour for the foregone experience associated with their PSE participation (Table 3). This equation provides little improvement in individual predictions, and most of the improvement comes from knowledge of residential location rather than from

knowledge of PSE.

(c) 1976 satisfaction

PSE has little impact on satisfaction. Those with a two-year academic degree have higher overall job satisfaction than high school graduates (Table 3), but they are not greatly more satisfied than other members of the sample.

In terms of the real world experienced by these members of the high school class of 1972, the results summarized in Table 3 suggest that (except for occupational status) those holding postsecondary credentials are neither markedly advantaged nor disadvantaged by them.

On the other hand, even though their job seniority is typically less than that of high school graduates, credential holders have equivalent hourly earnings and somewhat better jobs.[1/] The greater seniority of high school graduates helps them earn as much as postsecondary credential holders, but this is not likely to persist over the long run as the difference in seniority becomes trivial.

(2) Mediation by Intervening Variates

An analysis using the procedure illustrated above (by the detailed discussion of the network of variates linking PSE and 1975-76 labor market success) shows that PSE effects on other outcomes are also mediated. This section presents the main features of a highly complex system of influences

---

[1/] Table 1 (Ch. 1) shows gross effects of PSE on 1976 job longevity (seniority). The reduction is from 5 to 12 months, on average.

connecting PSE to each of the four outcomes just discussed. Though much less detailed than the employment success discussion, it also follows the changes in coefficients for PSE variates as additional control variates are introduced into the prediction equations.

Table 9 (A-K) presents the step-by-step record of changing PSE coefficients in equations based on the sample of those employed in October 1976.[1/] Tables 9A through 9F present information on their labor market success. These results parallel those already discussed (from Table 8); with minor modifications they are very similar, hence need no additional discussion.

The discussion thus begins with PSE effects on 1976 job longevity (seniority), a major intervening variable which reflects the detrimental influence of foregone early experience. The importance of job seniority lies in its impact on employment security during adverse economic conditions and its positive effect on wages. Reduced job seniority among those involved in postsecondary education constitutes a handicap in terms of both future job security and current (1976) wages.

(a) 1976 job seniority

The principal variables intervening between postsecondary education and job longevity (seniority) are shown

---

[1/] Appendix 2-4.

to be residential location, early work experience, 1974 occupational status, and the number of employers after PSE termination (Table 9G). As should be expected, the number of employers is one of the two most important influences.

The first important change in the impact of PSE on job seniority occurs on introduction of a control for early work experience.[1/] The PSE coefficients are dramatically reduced, indicating the importance of foregone early experience for subsequent job longevity. When the handicap of limited early experience is removed, job seniority of PSE participants is much more like that of comparable high school graduates.

Introduction of a control for initial occupational status indicates some seniority benefits for PSE participants because of their slightly elevated 1974 occupational status. In succeeding steps, we see that (a) 1974 wages do not mediate the impact of PSE on longevity; (b) job stability in 1974-75 does; (c) recent work experience does, but only weakly; and (d) other factors are of little importance in mediating PSE influence on seniority.

The importance of job stability as a mediating variate is particularly significant in light of the unstable economic conditions during that period of severe recession.

[1/] The PSE coefficients change on introduction of controls for 1976 residence location, because PSE categories are correlated with location. Table 6 can be used in conjunction with Table 9 to help understand the changes occurring in the coefficients for education.

The reduced number of employers for those with postsecondary education suggests that they were insulated from forces of changing conditions in the labor market. The rough similarity of effects for all types of credentials and their contrast, as a group, with the effects for dropouts suggests that credentials were a helpful shield against the pressures of an unstable labor market. They help create the job stability necessary for accrual of seniority.

(b) 1976 occupational status

The impact of PSE on 1976 occupational status is mediated through several other variables, chiefly early work experience, 1974 occupational status, and 1976 job content, particularly time spent working with ideas and doing paperwork (Table 9H).

The loss of early work experience is a considerable handicap, but this is more than offset by the advantage in initial status for those with PSE credentials.

The introduction of other control variates causes only some slight fluctuations in the PSE coefficients, until controls for job content are added.

Although time spent on manipulation of objects (THNGTIM6) introduces a small downward adjustment, this is not nearly comparable to the result of equalizing time spent on ideas and (particularly) doing paperwork. When time spent on ideas is equivalent for high school graduates and PSE participants, college vocational degrees confer no direct

benefit and two-year academic degrees only a small benefit. The status benefits for these degrees derive from access to jobs which require work with ideas. The control for "idea" content does not much alter the status advantage for dropouts, indicating that (as compared to the college degree holders) relatively little of their work time was spent dealing with ideas.

A control for the amount of time spent with paperwork slightly reduces the benefit for the two-year academic degree and sharply reduces, but by no means eliminates, the status benefit for dropouts. This indicates that dropouts' status depends heavily on their access to clerical or administrative jobs, which are less important among the degree holders.

It is of particular interest that no degree of control completely eliminates the 1976 status advantage of dropouts.[1/] The reason for this is not known; perhaps simple exposure to postsecondary education, or personality variables which might explain dropping out, contribute to somewhat better occupational status.

A strong influence of 1974 occupational status upon 1976 status points up the considerable importance of PSE contribution to advantageous early job placement, because the

---

1/ Interest in the benefits for dropouts is based partly on their substantial numbers. Employment effects associated with SMPSENCR apply to about 30 percent of this sample.

benefit tends to carry forward for at least the first two years thereafter. Initial status is, as might be presumed, one of the most important variates in the mediating system.

(c) 1976 wages

Equations in Table 9 show the impact of postsecondary education on wages in 1976. For the most part, there is no measurable impact; there are, however, a few exceptions worthy of mention.

When the detrimental effects of lost early experience are removed, academic degree holders have a slight 1976 wage benefit. The next step of the equation shows this to be attributable to their enhanced 1974 occupational status, further emphasizing the importance of early occupational placement.

When only background and location factors are similar to those of the comparison group, the dropouts are seen to pay a slight penalty for their involvement in postsecondary education, which the next step shows to be attributable entirely to their lost early experience. Introduction of a control for the size of the 1976 employing organization once again reveals a wage penalty for dropouts, indicating that the previous lack of a penalty can be attributed partly to a tendency to work for relatively large organizations. The next step shows this penalty to result from lost job seniority, a consequence of foregone early experience and later job instability.

Figure 2 (A-E)[1/] shows the network of mediating

[1/] Appendix 2-5.

variables through which the impact of postsecondary participation is transmitted to 1976 wages. (These figures follow the pattern of path diagrams, but are not complete because several important variables involved in the system have been omitted for the sake of simplicity.) It is clear that the pathways of influence are highly complex and that most of the positive effects are offset by a host of small negative influences throughout. Moreover, the large negative impact initiated by foregone early work experience is not shown in these figures. PSE does affect 1976 wages, but its benefits are nullified by contradictory effects.

In Figure 3, I have "straightened out" the networks of influence to show all of the connections through which effects of an academic two-year degree are transmitted to the 1976 wage, demonstrating the great complexity of indirect effects. There are 24 distinctive chains of influence, almost three-quarters of which flow through the effect of academic degrees on initial occupational status; the majority of that subset results, in turn, from indirect impact on the number of employers during the period 1974 to 1975.

(d) Pay satisfaction

In the main, postsecondary education does not affect satisfaction with pay and fringe benefits (Table 9J). Given early work experience equal to the comparison group, two-year academic degree holders have a slight benefit, flowing from their enhanced initial occupational status. This once

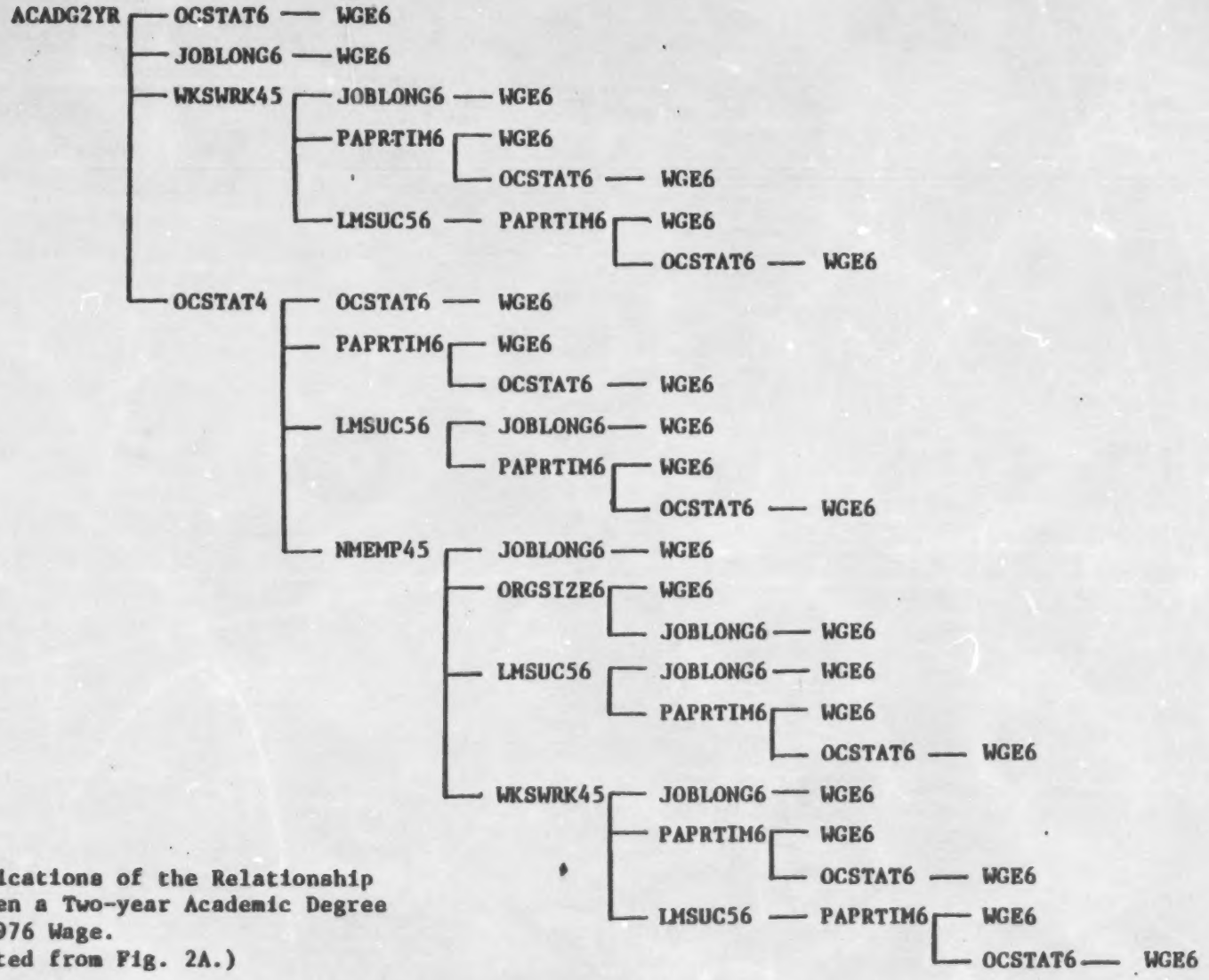

Fig. 3: Ramifications of the Relationship between a Two-year Academic Degree and 1976 Wage.
(Adapted from Fig. 2A.)

more points up the importance of the PSE contribution to early status placement.

(e) Overall job satisfaction

In comparison to those with equal early experience, the holders of most postsecondary credentials are somewhat more satisfied with their 1976 jobs than those lacking credentials, whether PSE dropouts or high school graduates. Credential impact is mediated by initial occupational status, which in turn influences 1976 job content, a crucial factor affecting job satisfaction. The postsecondary credential evidently gives access to jobs involving a greater proportion of time spent working with ideas (and paperwork) rather than with things. This lends greater satisfaction to jobs, perhaps because they are more stimulating, less physically taxing, or both.

These mediating effects are shown by the changing coefficients in Table 9K, as follows:

When initially compared to high school graduates with equal early work experience (i.e., after introduction of WKSWRK24), holders of credentials (except college vocational degrees) were more satisfied with their jobs. The next step in the equation attributes this to 1974 status.

Only minor changes in PSE coefficients occur thereafter until the introduction of a control for the time spent working with ideas. At that step, job satisfaction benefits for non-degree credentials are eliminated; holders of such

credentials, then, receive greater job satisfaction by virtue of spending more time working with ideas. Part of the enhanced satisfaction for academic degree holders also results from this crucial element of job content.

A control for 1976 occupational status eliminates direct benefit for the academic degree holders. Job content, with its influence on status, is a crucial factor mediating the impact of PSE on job satisfaction.

It should be noted that although wages strongly affect satisfaction with pay and fringe benefits, which in turn strongly affects overall satisfaction, these variates do not mediate PSE influence on overall satisfaction. This is because PSE is not, on the whole, directly related to wages.

E. Summary of Cross-sectional Analyses

The main benefits of short-term postsecondary education are jobs with higher occupational status and more satisfying task content than those held by peers lacking postsecondary training.[1/]

There is no wage benefit, partly owing to the lack of job seniority consequent upon foregone early experience. College dropouts suffer a small wage penalty by comparison

---

[1/] Table 10 gives stepped results for two subsamples: employed women, and employed minority-group members. The processes of PSE influence are similar enough to obviate need for special discussion, but the reader may wish to compare the results directly. Important net effects are cited in Chapter 1. (See App. 2-6).

with their high school peers who went directly into the work force. However, many dropouts mitigate this penalty by working in large cities and organizations.

These results show that wages are not a good general indicator of employment benefits from schooling, at least where PSE is at the levels discussed here and the period covered is early in the work career. Studies focused exclusively on earnings will overlook important "quality" benefits in the form of higher status, more demands for use of the mind, and consequent greater general satisfaction.

Such intangible benefits from PSE are apparently important to these young people, who were happier with their jobs than comparable high school graduates, despite not earning more.

Because its effects are chiefly indirect, those exposed to PSE may not recognize its influence. Moreover, many with PSE may not have realized any benefits: the many mediating influences indicate that labor market conditions at specific times and places are crucial to the PSE "payoff." Where conditions restrict the opportunity for PSE to work indirectly, benefits may be absent or, worse yet, participants may be penalized for foregone work experience.

CHAPTER THREE

CHANGE IN OCCUPATIONAL STATUS AND HOURLY EARNINGS

The analyses in this chapter concern changes occurring in the occupational status and hourly earnings of respondents employed in both October 1974 and October 1976.

A. Descriptive Background

As mentioned in Chapter 2, the dynamic analysis sample differed in several respects from the cross-sectional samples. Most important of these are (a) employment in both 1974 and 1976 and (b) larger proportions of PSE participants, especially those with degrees. Nonetheless, information from the dynamic analysis provides a reasonable picture of changing circumstances within the study population during 1974 to 1976. It portrays a population whose experience can be summarized as fairly stable, with little changing of jobs or geographical mobility. Generally speaking, the tendencies of mobility were toward less populous places and smaller towns, though there was by no means a sweeping shift in location. The average 1976 location (which I have described as being roughly Cape Girardeau, Missouri) is consistent with a shift of people toward less populous states and smaller towns.

Rather few people moved, thus the mean values for place changes are small. For the sample as a whole, the average distance moved was less than five miles, and the average change in city

was to a place about 2 percent smaller than the 1974 location.

During the 104 weeks from 1974 to 1976, the typical person added about 95 weeks of work experience. As compared to the 85 weeks worked from 1972 to 1974, this represents an increased supply of time to the labor market. During the entire two-year period, the average number of employers was about 1.5, higher than the 1.3 average for the first half (1974-75). More job changing apparently occurred in the second half (1975-76), which may reflect declining unemployment and greater opportunity for job changes.

Some data are available on movements between employment statuses. Between 1974 and 1976, some 4.4 percent of the sample changed from part-time to full-time work, while 3.8 percent went from full-time to part-time status. In the same period, there was a shift of 2.7 percent from public to private employment and a countering shift of 3.7 percent from the private to the public sector.

The average change in job longevity was about 12 months, which may be surprising because the period was 24 months. It is important to recall that this variate indicates change in job seniority, not just passage of time, and includes negative values for lost seniority among those who changed jobs. The 12-month average increase, coupled with 95 average weeks worked, indicates that during the period some sample members lost a great deal of accumulated seniority as a result of having changed jobs.

The average rise in occupational status during this

time was 3.8 scale points, and the average change in (current dollar) wages was 31.8 percent.

B. The Analyses

(1) Outcome Variates

Changes in the occupational status and hourly earnings of individuals (not groups) are the outcome variables for this analysis. They are explained by background and PSE variates, as well as by measures of other changes experienced.[1/]

Earnings comparisons are in current dollars, that is, dollars not adjusted for inflation. (Table 12 includes selected data for change in real earnings, based on an adjustment of 1974 earnings which places them on a par with 1976 dollars.) Change in earnings is measured in percentage increase or decrease; for example, if the 1974 wage were $3.00 and the 1976 wage $4.00, the wage-change value would be 33.33. Change in occupational status is measured simply by subtracting 1974 status score from the 1976 status score.

(2) Explanatory Variates

The PSE variates are those already described (Ch. 2). For the most part, background variates are the same as those employed in the cross-sectional analyses, but two are unfamiliar. "NENGLISH" designates those reared in a home where English was not spoken as a primary language;"HSCLASZ"

1/ Data for the 1974 job are much less extensive than for the 1976 job. This prevents construction and use of change measures for such important factors as organization size and job content, for example.

is the size of the senior class in the respondent's high school. This serves both directly as a measure of the size of the high school and, by implication, as a measure of the size of the city or locality in which the person lived.[1/]

Change variates included measures for changing socio-economic environments within states where respondents lived during the period; these are divided into two sets representing the recession period of 1974-75 and the recovery period of 1975-76.

In addition to internal change, variates representing altered environments resulting from interstate mobility were included, as were change in the general magnitude of the city (town, etc.) where respondents lived.[2/] One variate measures the approximate distance moved for those who did not live in the same town in both years.

Increased work experience is represented by the number of weeks worked during the period, and frequency of job changing by the number of employers. As already noted, shifts between public and private sectors and between full-time and part-time employment are also considered, as is the loss or accumulation of job seniority.

In sum, these explanatory variates capture as much

[1/] Both were tried in preliminary cross-sectional equations, and removed for lack of effects.

[2/] "Magnitude" is a more accurate term than population since cities were indexed in size-classes according to rough approximations of population. See Ch. 5 for details.

as possible of changing socioeconomic environments and work history, in addition to fairly complete social and educational background.

(3) Procedures and Terminology

The analysis rests on regression equations paralleling those used for the cross-sectional analysis, and proceeds in the same manner. Fewer details are discussed, though appendix tables are provided for those wishing to examine changing PSE coefficients in detail.

The terminology used could be misleading, hence a comment. "Benefits" here need not mean absolute increases in either status or earnings. The term refers, rather, to relative gain, where the experience of change by comparable high school graduates is the base.

Benefits (positive regression coefficients associated with PSE) can result in any of five ways:

1. Lack of change by PSE participants may be coupled with downward drift by high school graduates,
2. Downward drift by high school graduates may be coupled with upward drift by PSE participants,
3. Lack of change by graduates may be coupled with upward drift for PSE,
4. Upward drift by graduates may be coupled with greater upward drift for PSE, or
5. Large downward drift by high school graduates may be coupled with smaller downward drift for PSE participants.

It should be clear that even if number 5 applies, the term "benefit" is appropriate to the situation, since in that instance PSE participants would be saved from an equal drop in status or wages.

In sum, "benefit" should be construed only as a relative advantage in status or wage mobility.

C. Results

Because earnings changes depended fairly strongly on status changes and on many of the same variates which influence status change, the two are discussed jointly. The equations are so closely related that separate discussion is for the most part unwarranted.

(1) PSE Effects Net of Other Influences

Table 11 presents the final equations for occupational status and hourly earnings. It is clear that the main result is evidence of a ceiling effect on both status and wage growth. Those who had higher status or earnings in 1974 enjoyed the least growth in the period 1974 to 1976.

This does not suggest that it is desirable for people to start with low status and low earnings, but shows that those who did had more room for upward movement than those starting near the top of the range. The initial occupational status and wage are the main contributors to the explained variance for their respective outcomes, although contributions were made by some PSE categories and certain other variables.

Table 11: Factors Affecting Changes in Status and Wages, 1974-76

Variate	Status Change		Wage Change	
	B	Beta	B	Beta
NENGLISH	NS	NS	-8.27	-.041
MINORITY	-1.73	-.033	NS	NS
MALE	NS	NS	10.19	.100
SES	1.44	.045	NS	NS
HSGRADES	NS	NS	-1.53	-.040
HSACAD	2.62	.061	NS	NS
HSVOC	1.54	.040	NS	NS
HSCLASZ	NS	NS	NS	NS
SMPSENCR	2.75	.069	NS	NS
PSECRDT	NS	NS	8.34	.057
VOCDGVOC	NS	NS	16.19	.048
VOCDGCOL	NS	NS	NS	NS
ACADG2YR	4.51	.044	NS	NS
WKSWRK24	NS	NS	NS	NS
GOCSTAT4	-0.56	-.526	0.25	.086
CURRWGE4	--	--	-10.29	-.365
R4POPJ45	NS	NS	NS	NS
R4NAGJ45	NS	NS	NS	NS
R4NRZJ45	NS	NS	NS	NS
R4WGEJ45	NS	NS	1.96	.049
R4IUNJ45	NS	NS	NS	NS
R4TUNJ45	NS	NS	NS	NS
R6POPJ56	NS	NS	NS	NS
R6NAGJ56	NS	NS	NS	NS
R6NRZJ56	NS	NS	NS	NS
R6WGEJ56	NS	NS	NS	NS
R6IUNJ56	NS	NS	NS	NS
R6TUNJ56	NS	NS	NS	NS
MOBDPOPG	NS	NS	NS	NS
MOBDNAGG	1.98	.085	NS	NS
MOBDNRZG	-0.44	-.050	NS	NS
MOBDWGEG	NS	NS	NS	NS
MOBDMFGG	NS	NS	53.98	.251
MOBDTRDG	NS	NS	NS	NS
MOBDGOVG	19.64	.281	NS	NS
MOBDSVCG	NS	NS	62.11	.218
MOBDTRUG	NS	NS	NS	NS
MOBDFING	NS	NS	NS	NS
MOBDCONG	NS	NS	55.90	.281
MOBDMNPG	NS	NS	NS	NS
MOVIND	0.52	.053	-0.94	-.035
CITDIFF	0.70	.040	2.67	.055
WKSWRK46	0.11	.099	0.14	.047

Table 11: (Cont'd) Factors Affecting Changes in Status and Wages, 1974-76

Variate	Status Change		Wage Change	
	B	Beta	B	Beta
NUMEMP46	-0.88	-.047	3.43	.066
PUBPRV46	-5.54	-.048	NS	NS
PRVPUB46	4.19	.042	NS	NS
FTTOPT46	-5.45	-.056	18.60	.070
PTTOFT46	2.80	.031	15.35	.062
LONGCH46	NS	NS	0.17	.050
GOCDIF46		--	0.23	.083
Intercept	21.16	--	18.21	
Multiple R:		.546		.410
R^2:		.298		.168
SEE:		15.75		46.80

Notes: Equations are for final step, including variates indicated. "NS" entry indicates not statistically significant at (nominal) $p = .025$. See Ch. 5 regarding use of this criterion. CURRWGE4 not included in status change equation. "Beta" coefficients are standardized regression coefficients, "B" unstandardized.

Apart from the initial levels, the most important contributors were variates indexing an adjustment for mobility between states.[1/] These represent the difference between economic change occurring in the state of destination (1976) and in the state of origin (1974).

A move from a state with relatively slow-growing government employment to a state with more growth in that sector made a substantial contribution to status increase. Lesser, but still important contributions were made by movement to states with faster-growing industrial and commercial activity.[2/]

The mobility variates were even more important in explaining earnings increase. Three made major contributions in the final step of the wage equation, and another was eliminated only by introduction of the status-increase score in the next-to-last step.[3/]

Some forms of PSE contribute directly to status and earnings increases; two-year academic degrees also indirectly affect earnings via their influence on occupational status

---

[1/] "Importance" is assessed in terms of the standardized (beta) coefficients.

[2/] As indexed by growth in the non-agricultural labor force and sales of non-residential electricity. MOBDNAGG and MOBDNRZG (the respective variates) have separate direct effects; this may reflect a tendency for electrical energy usage to distinguish between high-technology and less sophisticated industry.

[3/] The eliminated mobility variate was for relative growth in government employment, which is closely tied to status change.

changes.[1/] In the presence of numerous controls for background and changes in environment and work experience, dropouts and academic degree holders experienced greater increase in occupational status. No other PSE variates made direct contributions. For changes in hourly earnings, we find fairly substantial benefits from non-degree credentials and vocational school degrees. These are not as important as the effects of several other variates, but large enough to merit attention (Table 11).

(2) Mediation of PSE Influences

Examination of the equations as they develop step by step reveals other PSE influences exerted indirectly through intervening variates. Moreover, some effects which might otherwise be attributed to PSE are shown instead to be results of background factors which affect PSE participation.

(a) No other influences controlled (Table 12, Eq. A)

When only PSE is considered, there were status-mobility benefits only for dropouts.[2/] In terms of current-wage change, there were fairly substantial benefits from non-degree credentials, vocational school degrees, and two-year academic degrees. For real-wage change, the PSE effects are essentially the same as for current-wage change.[3/]

[1/] All PSE contributes indirectly to earnings change by way of influence on 1974 occupational status, which in turn exerts a fairly strong influence on earnings change. See GOCSTAT4 in the final earnings equation.

[2/] See comment in "Procedures and Terminology," page 70.

[3/] Discussion of real-wage change is dropped hereafter, because the results are virtually identical to those for change in current-dollar wages.

Table 12: Effects of PSE on Change in Occupational Status and Hourly Earnings, 1974 to 1976

				Regression Coefficients										Equation	
				SMPSENCR (32.0%)		PSECRDT (14.1%)		VOCDGVOC (2.3%)		VOCDGCOL (1.2%)		ACADG2YR (3.5%)			
Dependent Variable	Mean	SD	Wtd N	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta	R^2	S.E.E.
GOCDIF46	3.85	18.69	4075												
Eq. A[1/]				2.51	.06	- NS -		- NS -		- NS -		- NS -		.004	18.66
Eq. B				2.20	.05	- NS -		- NS -		- NS -		- NS -		.007	18.66
Eq. C				1.92	.05	- NS -		- NS -		- NS -		- NS -		.008	18.65
Eq. D				2.82	.07	- NS -		- NS -		6.16	.04	5.07	.05	.268	16.02
CWGECH46	31.8	50.99	4075												
Eq. A				- NS -		9.9	.07	23.1	.07	- NS -		11.8	.04	.009	50.79
Eq. B				- NS -		10.1	.07	23.4	.07	- NS -		13.5	.05	.013	50.75
Eq. C				- NS -		9.0	.06	21.0	.06	- NS -		10.8	.04	.014	50.71
Eq. D				- NS -		9.0	.06	20.9	.06	- NS -		10.6	.04	.014	50.72
Eq. E				- NS -		8.2	.06	18.9	.06	- NS -		11.0	.04	.130	47.64
RWGECH46	16.3	45.09	4075												
Eq. A				- NS -		8.8	.07	20.9	.07	- NS -		10.4	.04	.009	44.91
Eq. B				- NS -		9.0	.07	21.1	.07	- NS -		11.9	.05	.013	44.88
Eq. C				- NS -		8.0	.06	19.0	.06	- NS -		9.5	.04	.015	44.84
Eq. D				- NS -		7.8	.06	18.9	.06	- NS -		9.4	.04	.015	44.84
Eq. E				- NS -		7.3	.06	17.2	.06	- NS -		9.8	.04	.131	42.13

[1/] Equation A has no controls for correlates of PSE. Eq. B has background characteristics controlled; Eq. C has background and early work experience controlled; Eq. D has preceding plus initial (1974) occupational status controlled; Eq. E has preceding plus initial wage level (CURRWGE4, ADJWAGE4) controlled.

(b) Background influence controlled (Table 12, Eq. B)

Controls for background characteristics include SES, sex, minority status, non-English language, high school program, grades, and class size.

When these are introduced, there is a small downward adjustment of the impact of dropping out upon status increase, and a substantial rise in the impact of two-year academic degrees on current-wage change. That is, the status-mobility advantage enjoyed by dropouts is partly, but not mainly, due to background differences. These likewise serve to obscure part of the wage benefits from two-year academic degrees.

(c) Background and early experience controlled (Table 12, Eq. C)

Early work experience has important influence on both occupational status and earnings. Foregone experience tended to depress both status and earnings in 1974. We have already seen that lower 1974 levels of status and wages are associated with greater growth over the ensuing period. Because of the inverse relationship of PSE to early experience and of initial status and wages with growth, addition of a control for early experience reduces certain PSE effects. In this looking-glass world, effects of PSE which are benefits in the ordinary sense turn out to be "handicaps" with regard to growth, and vice versa.

Consequently, when early experience is entered as

a control, wage-change benefits for PSE are reduced, as is the status-mobility advantage for dropouts. What had been attributed directly to PSE is now seen to be an indirect effect of the lost early experience associated with PSE.

(d) Background, early experience, and initial status controlled (Table 12, Eq. D)

Addition of a control for 1974 status alters the impact of PSE on status change. Without the "handicap" of an initial status advantage, the coefficient for dropping out rises about 1 status point. Likewise, there are now significant contributions to enhanced status mobility from college degrees, whether vocational or academic. Since holders of such degrees typically started with above-average status, on average they had smaller expected increases.[1/] There is, however, variation in the initial status of both college degree holders and high school graduates. When initial status is controlled, so that people with equal initial status are compared, we find that those with two-year college degrees realized status-mobility benefits. Addition of the initial status variable brings no alteration in the wage-change coefficients of the PSE variates.

(e) Background, early experience, initial status, and initial wage controlled (Table 12, Eq. E)

1/ In this system of inverse relationships, where low initial status is associated with greater status improvement, an initial status advantage for PSE participants is a handicap so far as status mobility is concerned.

Equation E adds a control for the initial wage level to the earnings equations. This brings small adjustments in the unstandardized PSE coefficients, which are of no great importance since the standardized coefficients do not change. The lack of change in PSE effects is to be expected, since PSE was not significantly related to initial wages.

(f) Changes in explained outcome variance

Addition of control variates to the equations in Table 12 gradually increases the explained variance (R^2). Prior to the introduction of 1974 status or wage variates, the equations perform very poorly, accounting for a trivial one percent of outcome variance. Introduction of the relevant initial-level controls considerably increases the explained variance for their associated outcomes (i.e., 1974 status with status change, 1974 wages with wage change). Despite the marked increase, we still explain only a small proportion of the variance, roughly 27 percent for change in occupational status and 13 percent for earnings change. The poor predictions based on PSE alone or with its close correlates (equations A-C for status change, A-D for wage change) indicate great uncertainty that a given PSE participant will realize the average estimated benefits.

The stepped results of these analyses are detailed in tables 13 and 14 (Appendix 3-1). A trace begun after introduction of controls for the initial (1974) status or wage yields some interesting results.

In the status-change equation, the stepped analysis reveals that while benefits for academic degree holders and dropouts are unmediated, the college vocational degree benefits are wholly derived from interstate mobility (Table 13). Holders of these degrees were evidently more likely than others in the sample to make changes of state location which resulted in enhanced status mobility. The unmediated effects for academic degree holders and dropouts presumably can be attributed to skills or abilities associated with participation in PSE.

In the wage-growth equations (Table 14), the stepped analysis shows that benefits for non-degree credentials and vocational school degrees are unmediated, but the benefit for A.A. degrees is entirely due to rising occupational status, to which those degrees contribute.

It is worth noting particularly that PSE influences on wage growth are not mediated by interstate mobility. Apparently, those with PSE are no more than ordinarily successful at using geographic mobility to gain higher wages. They do not appear to search effectively for a high return on their investment.

D. Summary

The crux of these results is that, on average, certain types of postsecondary education influenced growth in occupational status and hourly earnings over this two-year period, but individuals cannot depend on such benefits. As

one might suppose, status-mobility benefits are largest and most general when the ceiling imposed by initially high status is statistically removed. In comparisons with others having equal 1974 status, college degrees provide status gains considerably larger than those associated with high school diplomas, and dropouts gain a modest advantage as well. Non-degree credentials and vocational school degrees do not provide such an advantage.

Benefits in the form of enhanced earnings growth are less restricted. Though the estimates vary as controls for other influences are added, they remain within fairly narrow ranges at relatively high levels. It is here that PSE impact on change is greatest, though neither dropouts nor college vocational degree holders realize greater wage growth than comparable high school graduates. Wage increases are greater, by some 9 to 11 percent, for holders of non-degree credentials and two-year academic degrees. People holding vocational school degrees averaged some 20 percent greater wage growth than those with no postsecondary education.

In terms of leverage, indicated by the standardized regression coefficients, the impact of a non-degree credential is roughly equivalent to the impact of a vocational school degree and both are slightly more efficient than two-year academic degrees.[1/]

[1/] This point is discussed at more length in Ch. 4.

PSE effects are partly indirect. The loss of early experience, which tends to depress initial earnings, results in greater wage gains because of the inverse relationship between initial earnings and wage gain. The enhanced initial status associated with PSE tends to reduce status gains, again owing to a ceiling effect.

Two types of PSE exerted other indirect influences. College vocational degrees yielded status-mobility benefits only when there was interstate mobility, and two-year academic degrees yielded wage benefits only because of their impact on status mobility.

On the whole, mediation of PSE effects was not as pronounced for these outcomes as for the static outcomes explored in Chapter 2. This may be due to the lack of detailed information about the jobs held in both periods, since many of the intervening variates in the static analysis were descriptive of such details.

Finally, it must be noted that impact on wage change dominated the dynamic analysis, while impact on status differentiation dominated the static analysis. An anomaly of sorts is associated with this difference in primary effects; there appears to be an inconsistency between the finding of no wage effects for PSE in the static analysis, but rather large benefits in terms of wage gain. A special analysis (App. 3-2) shows that this is an artifact of differences in the sample used for the two analyses.

CHAPTER FOUR

SUMMARY AND IMPLICATIONS

In a 1970 publication, the Carnegie Commission on Higher Education made two statements which remained valid throughout the ensuing decade:

> We know very little...about the subsequent employment experience of /community college/ students trained in occupational programs.
>
> The Commission recommends that all states with community college systems should undertake continuing evaluation studies of the experiences of these colleges, with particular reference to student achievement during the two-year educational period and their subsequent education and employment. (Carnegie Commission, The Open Door Colleges, 1970:46)

Postsecondary education leading to formal awards for vocationally-oriented study is a growing trend. In the 1974-75 academic year, just over 277,000 Associate in Arts and other formal awards were granted for such study. Of these, 193.6 thousand were A.A. degrees conferred by institutions of higher education. Awards of A.A. degrees based on occupational curricula increased eighty percent in just the four years 1970-71 to 1974-75, up from 107.7 thousand in the opening year of the period. The 193.6 thousand vocationally-based degrees represented 54 percent of all A.A. degrees conferred, as contrasted with their 43 percent share in 1970-71. (Grant and Lind, 1977: Tables 120 and 121.)

The explosive growth of vocationally-oriented

sub-baccalaureate degrees during the first half of the 1970s is highlighted by contrast to changes in enrollment and in Associate degrees awarded. Degree-credit enrollment in two-year institutions rose about 35 percent, from 1.6 million in the fall of 1970 to 2.2 million in the fall of 1974. The total of all Associate degrees awarded (including those based on occupational curricula) rose accordingly by 36 percent, from 252.6 thousand in 1970-71 to 360.2 thousand in 1974-75. (Grant and Lind, 1977:Tables 85 and 121.) Clearly, the 80 percent growth in occupationally-oriented A.A. degrees reflects a marked increase in emphasis on vocational training at the A.A. level.

Coupled with this is the very fast pace of expansion in degree-credit enrollment at two-year (chiefly public) institutions. I have already noted the increase of 35 percent from 1970 to 1974; from 1970 to 1975, the increase was 54 percent. During the latter period, in contrast, degree-credit enrollment in universities rose only 12 percent and in other four-year institutions only 17 percent. In the fall of 1975, degree-credit enrollment in two-year schools accounted for at least 26 percent of all such enrollment and involved 2.5 million students. The 1975 share of enrollments in two-year schools was up from 21 percent in 1970. (Grant and Lind, 1977: Table 85.)

During the period covered by this study, vocationally-oriented study was a very rapidly-growing portion of the

fastest-growing sector of contemporary American postsecondary education. One may safely assume that this trend rested on the hope of millions that study at this level would enhance their future work experience in an economy, now dominated by advanced technology and provision of services, which demands more educational preparation than the manufacturing economy of the past.

Data from annual surveys of entering freshmen buttress this assumption (Astin, King, and Richardson, 1976:pp. 41-52). They show that two-year colleges in particular serve an important segment of American youth--those from working-class homes whose educational expectations are modest and who view short-term postsecondary education as an avenue to better economic circumstances than their parents could provide. Roughly 35 percent of those entering two-year institutions expected to work while in school and cited low tuition as a major reason for choosing the school, in marked contrast to smaller proportions for those entering four-year schools. More than half (55.6%) of the two-year students cited "getting a better job" as a very important reason for choosing their college, in contrast to fewer than half of those entering four-year institutions (49.2% at four-year colleges, 45.1% at universities).

The nation has an interest in assisting such students. Educational equity for all strata of American youth and encouragement of economic self-help both arouse concern that those pursuing education below the B.A. level get fair benefit

from their investment of money, time and effort. This study, which covers other sub-baccalaureate students as well, is aimed at that concern.

The results detailed in preceding chapters indicate that degrees from two-year institutions[1/] did indeed help students get better jobs, as did other PSE experience. They also speak to the needs cited by the Carnegie Commission by providing some details on both general employment circumstances in the years after school and the process by which PSE influences those circumstances.

The report stresses the importance of advantageous initial placement provided by PSE, as well as the detrimental influence of foregone work experience during enrollment. I have also emphasized the fact that different forms of exposure to PSE imply different consequences: job status benefits for dropouts, though unexpected, are generally much smaller than those resulting from credentials, especially degrees.

Moreover, the effect of degrees depends on both curriculum orientation and source. In general, two-year "academic" degrees yielded the greatest benefits.[2/] Vocational degrees from vocational schools (as distinct from colleges)

[1/] Here, "from colleges" is more exact, but most such degrees are from two-year colleges.

[2/] Academic degrees at this level are not necessarily in keeping with some notions of academic curricula. Like business administration or engineering degrees, they often have a largely vocational orientation.

were less beneficial, though when we consider differences in time invested and (probable) differences in the difficulty of obtaining such degrees they are about as efficient as college vocatonal degrees in providing benefits.

The vocationally-oriented two-year college degree, despite its rapidly increasing popularity, has mixed effects. Though it stands out here as the best shield against unemployment during the rocky economy of the period covered and provides status benefits rivaling the two-year academic degree, it supplies no measurable wage benefits and--among women--reduces satisfaction with pay and fringes. Apparently seeking better opportunities, some holders of such degrees gained enhanced status mobility by moving across state lines; such moves were, in fact, entirely responsible for status-mobility benefits from two-year college vocational degrees. Since growth in wages over the period depended partly on rising occupational status, holders of college vocational degrees should have realized faster wage growth as well, but did not.

The general lack of clear-cut wage advantages from PSE is an outstanding feature of the findings, which appears chiefly a consequence of foregone work experience and job seniority. This is evidently most pronounced among men, since most women with credentials (except college vocational degrees) did earn substantially more than women without them. Since limited work experience appears to be its main cause, the lack of a wage benefit seems likely to be rectified by the

passage of time. This presumption is buttressed by some evidence of faster wage growth for most credential holders.

An enduring wage penalty for dropouts can be viewed as an indication of what would have happened to credentialed workers if there were no wage benefit at all; credentials helped avoid the penalty for lost experience. I see no special reason for concern that credentials do not yield short-run wage advantage; it is probably as much as one can expect to have wages on a par with those of more experienced workers.

Some credentials pay off in intangible rewards as well. Overall job satisfaction is somewhat higher among those with two-year academic degrees and (when early experience is equal) those with vocational school degrees or non-degree credentials. The reason, it appears, is that such degrees lead to less physically taxing and more mentally stimulating jobs. The latter factor, especially, is a major influence on job satisfaction.

As earlier comments indicate, benefits from PSE tend to be indirect, mediated by its influence on other factors. This probably goes far toward explaining the uncertainty attached to individual predictions. To produce benefits, a credential must be offered in a labor market where there are no barriers to these intervening effects. Since credentials at this level tend to be offered in fairly localized markets,[1/]

[1/] Several indexes of geographic mobility, used in the dynamic analysis, had exceedingly small means, indicating very low incidence of geographic mobility.

much of an individual's benefit depends on circumstances close to home.

The final equations (Table 11) show that geographic mobility plays a fairly important part in determining both status mobility and wage growth, for all members of the sample. Increased geographic mobility would probably improve the employment payoff to credentials. Those with college vocational degrees, as noted, gained advantage in status mobility entirely through interstate mobility. They were the only PSE participants who stood out as having used geographic mobility as a means to better jobs; without it, they advanced no more rapidly than comparable high school graduates. The lesson taught by the equations is not particularly new, but important: those who go where they're needed do better than those who stay where they're not.

Discrimination doubtless accounts for much of the plight of minority PSE participants. I have little doubt that we can correctly cite discrimination as the source of nil benefits to members of minority groups. In equations with a host of statistical controls for other potential influences, a significant negative effect was found for minority status per se. That is, when the effects of sex, social class, high school program and grades, location, postsecondary education, experience, job stability, organization size, job longevity, part-time and government employment, and job content were taken into account as factors associated with both employment

outcomes and minority status, the latter factor had a direct harmful impact on both occupational status and hourly earnings. In the face of such extensive controls, only discrimination appears a satisfactory explanation for the specific disadvantage of being a minority-group member.

A similar, and even stronger, handicap affects women. With the same extensive controls for other influences, women's status and (particularly) wages, were much lower than men's. The gap was greater than that between minority and non-minority workers.

Nevertheless, women were more satisfied with both pay and their overall jobs. One wonders why. Probably, men working in conditions similar to those of women <u>feel</u> the injustice of their circumstances more; they have not been taught to accept such conditions as their lot in the labor market. The data do not lead us to believe that postsecondary education does much to revise the employment expectations of women.

Postsecondary education at levels below the baccalaureate does not much improve the status of women and minorities in the labor market, or did not during the period covered by these data. One hopes the times have changed, but this is a matter for future analysis. Perhaps it is too much to expect of education or training which, if attuned to

employment opportunities, produces credentials primarily for a local labor market. Under such circumstances, it may seem an appropriate strategy to train for what is locally available, but that may bias curricular choices of both women and minorities and negate potential benefits.

I have now come back to the opening portion of this discussion, where I stated that sub-baccalaureate PSE does appear, on average, to yield "better" jobs, in keeping with the expressed hopes of community college freshmen. It is now time to ask, "in what sense better?"

The answer is, "better than could be expected without PSE." That, however, is a highly limited conception of improvement, as the data for women and minorities suggest. "Better" occupational status for minority holders of non-degree credentials seems to mean "status as good as the average job held by non-minorities." Better status and wages for women means "not nearly as good as men doing similar work, but better than most of the women in my town."

Here is the challenge for Federal education policy: make sub-baccalaureate credentials pay off equally for women and men, for minorities and non-minorities, for small-town and big-city residents, for those in economically stagnant states and boom states.

This is doubtless a tall order, because (a) the schools which produce the credentials studied here are generally under the control of local governments or private

vendors, (b) the holders of such credentials appear mainly tied to local labor markets, with economic conditions and customs that do not yield easily to broad, policy-oriented action, and (c) opportunities for PSE at this level are distributed unevenly among localities.

Under such circumstances, direct Federal intervention seems limited to underwriting or providing advice and assistance, both to schools and to students present and prospective.

Before launching into discussion of how Federal efforts might help, let me clarify why I think the payoff to sub-baccalaureate PSE is limited.

There are various ways to interpret the data from this study. At face value, some of the absolute benefits, like ten- to twelve-point status differentials, seem rather large. But the reader who compares these estimated average benefits to the standard deviations of the outcome variate may see another situation entirely. With perhaps one or two exceptions, the estimated benefits mostly amount to less than half a standard deviation. If we were speaking of IQ scores, this would be the difference between IQs of perhaps 96 and 104, hardly important for practical purposes. Viewed in these terms, PSE benefits seem much less impressive than they do when only absolute amounts are considered.

Furthermore, while statistically significant within the equations as specified, the estimates of benefit are

tentative--subject to change if the equations are modified by addition or deletion of other variates. This instability is not per se a bad thing. But one must recall that most of the variability in outcome scores is not statistically explained by the equations; in many cases, very little is.

This means that factors not included in the analyses account for the bulk of variation in outcomes. What those factors are, and how they are related to the present estimates of PSE benefit, is not given by the available data. They might be additional intervening variates, in which case the estimated effects of PSE would not change. But they might be antecedent influences, affecting both PSE and employment experience (i.e., added "background" variates).

Consequently, it is hazardous to give too much credence to the absolute estimates. The "benefits" for dropouts, for example, may be due to something gained by exposure to PSE, but might also be due to some personal or social traits which engender dropping out.

There is also the matter of "leverage" or efficiency. In absolute terms, some forms of PSE appear much more beneficial than others, but when attention turns to the standardized (beta) coefficients, the picture often changes: the PSE category which appears more beneficial in absolute terms may become less influential in these relative terms. This is not an accident or an arithmetic artifact.

With all variates measured on a standard scale, these

estimates show the expected benefit for a single unit change in each independent variate.[1/] As a kind of output/input ratio, they express what I have called "leverage" or "efficiency." If both variates were in dollars, the ratio would be the rate of return on investment.

Where PSE credentials are concerned, the units are not in dollars, but rather something better called "rarity." In this sample, college vocational degrees are very rare, while high school diplomas are not at all rare. If we take "rarity" as a rough measure of the amount of varied resources (social, psychological, economic) invested in a credential, the standardized coefficients indicate how efficiently those resources are converted into employment benefits by marketing the credential.[2/]

In the same way, we can think of the coefficients for some other variates as expressing the "investment" conversion efficiency of other factors such as living in large cities or working for large organizations.

Those PSE credentials which produce the largest absolute benefits are not necessarily the most efficient in this sense. Moreover, they may be less efficient than

---

[1/] Each value is expressed as a multiple of its standard deviation. The coefficients give the fractional change in the dependent variate associated with a one-standard-deviation change in the independent variate.

[2/] It may be argued that uncommon credentials are just unpopular, not "costly." To the contrary, there are often large social and psychological costs associated with doing (or being) what is unpopular.

alternative ways of pursuing employment advantages, such as moving to large cities or especially hospitable socioeconomic environments.

From this perspective, participation in PSE does not seem always the best way to use resources. PSE coefficients, mostly in the range .01 to .10, are hardly comparable to those for many other variates. By this standard, a high school graduate might pursue benefits more efficiently by moving to Houston (for example) than by investing resources in an A.A. degree.

Finally, there is uncertainty. Low proportions of explained variance are accompanied by large expected errors in prediction accuracy for individual cases (i.e., the standard errors of estimate for the equations are large). A particular youngster cannot by any means depend on realizing the average benefit for a credential. Even relatively large average benefits, if they are highly unpredictable for individual cases, provide limited guidance to youngsters making PSE decisions. Besides the average benefit, youngsters need to know the probability of achieving that benefit to make fully-informed choices. As a result of these considerations, I am much less than fully convinced that sub-baccalaureate PSE should be generally encouraged if employment benefits are the major objective.

There are, however, some ways in which the Federal government might usefully intervene to improve employment benefits from sub-baccalaureate PSE.

The latter depended on analysis of changes in PSE coefficients at each step of the relevant equation as it was developed by sequential addition of new control variates. Mediation of PSE influences can be assessed by observing such changes, as illustrated in detail for labor market success (Ch. 2).[1/]

[1/] One reviewer has raised the possibility that multi-collinearity may affect the reported results. While "independent" variates are, in most instances, correlated to some extent, they never approach levels of .80 or above usually taken as the region in which multicollinearity poses serious problems of estimation. The equations were not permitted to include any variates approaching such high levels of association, though in the present data context this imposed no important limits on specification of the equations. Indeed, I have emphasized quite the opposite problem with respect to several "outcome" variates which enter analyses as predictors at various stages (see tables 8 and 9, for example, where multiple correlations are uniformly low).

The particular case of a negative relationship between education and early experience may trouble readers accustomed to research in which experience is estimated by subtracting years of education from age (less six pre-school years). When experience is so estimated, it is a direct function of education, and a high correlation between the two may be expected, especially when there is little variation in age. In this study, experience is measured independently of education, by reported weeks worked during the specified periods (including 1972-74). Since students may have worked while engaged in postsecondary schooling, there is no necessary link between education and experience as measured here.

The zero-order correlations between credentials and early work experience are given in table 6; the largest (.262) is for non-participants in PSE (HSNOPSE), the smallest (-.082) for non-degree credentials (PSECRDT).

There were, to be sure, very high correlations among several variates used to describe contextual socioeconomic conditions faced by sample members (state descriptors). These, however, were reduced to several oblique factors, none correlated higher than .27 with others (Appendix 5-1).

Under these circumstances, there is little reason for concern that excessively high correlations among predictors pose a major analytic problem.

The effects of foregone early work experience serve nicely to illustrate how the two analytic approaches reinforce each other to produce reliable assessments of influence processes. With early work experience as the dependent variable, PSE was shown to markedly reduce such experience, as should be expected. In later stepwise equations for terminal outcomes (e.g., 1976 occupational status), the introduction of a control for early work experience causes PSE coefficients to rise relative to the preceding step, which lacked a control for early work experience. We then know that (a) PSE participation reduces early experience and (b) when compared to others of equally limited early experience, the status benefit for PSE participants is greater than when they are compared to others including those with more early experience. Thus there are two grounds for concluding that foregone early experience, resulting from PSE participation, alters or mediates the impact of PSE: PSE reduces experience, and the estimated advantage is greater when experience is equal than when it is not. These two results provide good evidence that foregone early work experience handicaps PSE participants insofar as status benefits are concerned.

In all analyses, I have made use of an unusually stringent criterion for statistical significance of effects. While most research of this nature requires coefficients to have chance probability of only .05 or less, I have demanded a level of.025 or less as evidence of statistical significance.

There are three reasons for this decision, involving a mix of technical considerations and concern for possible policy or other applications of the reported results.

First, the analyses were performed with weighted data to approximate a random sample of the population. Since the standard errors of the coefficients may have been reduced owing to weighting, I chose a nominal level of significance which would almost surely guarantee that coefficients here regarded as statistically significant would remain so even if their true probability of chance occurrence were somewhat greater than the nominal estimate. The nominal level of $p \leq .025$ provides reasonable assurance that effects designated significant in this analysis would have been so designated if an unweighted random sample had been available for study.

Second, I have already noted that case exclusions for missing data are likely to have resulted in a biased sample. Knowing that, I preferred a significance level which would leave little doubt about the principal relationships between outcomes and various forms of postsecondary involvement. The chosen level offers some safeguard against emphasizing marginal effects which might be due to a biased sample.

Third, a practical concern for possible counseling applications of the data demands caution in judging where benefits exist. A stringent criterion requires that estimated average benefits depart rather far from zero. This provides an extra margin of reassurance that few youngsters who fail to gain the average will have benefits at or near zero.

While the chance of wrongly rejecting a genuine PSE effect is increased by this decision, the combination of circumstances cited seemed sufficient ground for using the stringent nominal probability level. If there are in fact effects where I have concluded none exist, such effects strengthen the general conclusion that there are benefits from PSE. Though such an erroneous conclusion would serve to downgrade some forms of PSE participation relative to others, I have sought to emphasize that the general tentativeness of the benefit estimates probably does not warrant overly close comparisons among forms of PSE. Therefore, I believe more good than harm results from use of the stringent acceptance criterion.

D. Data

Excepting variates which describe occupational status and residential location, all data were taken from the National Longitudinal Study of the High School Class of 1972, a survey conducted chiefly by the Research Triangle Institute.

Location

Information on characteristics of states of residence was drawn from a variety of U.S. Government statistical publications[1/] and merged with individual records by way of postal ZIP codes included in the file. The use of these codes may have induced some errors in attribution of residence

---

1/ Except that some information on use of non-residential electricity in the District of Columbia was kindly provided by PEPCO, the local supplier.

in 1974 and 1976, but absence of direct data demanded it. Data on city size in 1974 and 1976 were grounded in categorized survey items, but involved use of published data for estimation of the average population in each class of city specified in the NLS.[1/]

Postsecondary Education

Respondents were assigned to PSE categories on the basis of their answers to several items, starting with a Third Follow-up inquiry concerning what, if any, credentials had been obtained by October, 1976. Associated dates (month, year) and field-of-study codes were utilized to (a) eliminate from consideration those receiving credentials after October 1974 and (b) assign vocational or "academic" curricula. For the latter purpose, codes drawn from the HEGIS taxonomy and OE "occupational education" classifications were used as follows:

The data file contains numeric codes selected from one of the two schemes cited, manually entered by the survey organization (RTI) from verbal statements of topical "area" given by respondents. These numeric codes are used for all relevant education items.

The HEGIS 4-digit taxonomy provides codes for curricula which, in the case of sub-baccalaureate programs, may (but are not necessarily) be creditable toward a bachelor's degree, and which constitute either (a) arts and science or

---

[1/] Additional discussion of locale data is given below.

general programs not designed as occupational curricula, (b) integrated occupational curricula at the technical or semi-professional level (including such fields as data processing technologies, health services and paramedical technologies, mechanical and engineering technologies, natural science technologies, business and commerce technologies, and public service technologies), or (c) occupational curricula below the technical level. The last constitute a negligible proportion of two-year degrees. Finally, HEGIS 4-digit codes also are used for traditional baccalaureate and higher-degree curricula.

For purposes of this study, I designated "academic" those curricula to which HEGIS 4-digit codes were assigned. Those coded with six-digit "occupational" codes--the OE codes used for lower-level vocational training--were designated vocational. Two-year "academic" degrees thus include curricula which (if occupational) are technical or semi-professional in nature, as well as general arts/science curricula and traditional baccalaureate-level curricula.

I opted to consider semi-professional curricula as "academic" because it is not clear, even at the B.A. level where the line should be drawn. Business administration, engineering, pharmacy, agriculture, and numerous other baccalaureate curricula are primarily occupational in orientation, yet are considered "academic" because they lead to the B.A. I have attempted to apply similar standards for A.A.-level degrees.

The type of credential claimed,[1] the field of study code, the last known type of school attended, and enrollment history to October 1974 were considered in assigning cases to PSE categories. First, those holding B.A. or higher degrees were eliminated, as were those with credentials received after October 1974. Then cases were classified as in academic or vocational programs, as defined above.

Those claiming two-year academic degrees only were assigned to that category (ACADG2YR). Those with vocational programs were subdivided by type of school last attended. Those claiming two- or three-year vocational degrees were assigned as (a) from colleges (VOCDGCOL) if they also claimed a two-year academic degree, (b) from colleges if they had either an academic field-of-study code or last attended a 2- or 4-year college, or (c) from vocational schools otherwise (VOCDGVOC).

Those not claiming degrees, but claiming certificates, licenses, or "other" credentials were classified as having non-degree credentials (PSECRDT). Those claiming no credential were divided between (a) those ever enrolled in PSE by October 1974 (SMPSENCR) and (b) those never enrolled (HSNOPSE).

Labor Market Success

Respondents answered items inquiring (a) how many weeks they had worked during 1975 to 1976 and (b) how many weeks they were not working and were looking for work, on lay-off, or waiting to report to a job (i.e., unemployed).[2]

---

[1] Item 48 of the third follow-up questionnaire.

[2] TQ42B, TQ43B.

I summed the two (discounting unemployment to the extent that the sum exceeded 52 weeks) to determine labor force participation. I then determined the median number of weeks worked for each one-week participation category (i.e., for 1 week... 10 weeks, ... 30 weeks, ... 52 weeks). The resulting 52 medians were tabled for a calculation subroutine which produced the index of relative success below.

Each respondent's number of weeks worked in 1975-76 was divided by the median number for his labor force participation category, producing a value greater or less than (or equal to) 1.0 depending on whether more or fewer than the typical number of weeks were worked. This value is the index of labor market success, LMSUC56.

Index values greater than 1.0 indicate relatively successful labor market activity, while those less than 1.0 indicate difficulty in the form of more-than-ordinary amounts of unemployment. The index values are automatically adjusted to remove differences based on varying amounts of labor force participation, since each respondent is indexed relative to others having the same amount as he.

All persons working (say) 90 percent of the median weeks are considered equally unsuccessful, regardless of whether the number of weeks worked was 20 for one and 40 for another. The pivotal concept is success relative to others with equal labor force participation.

Occupational Status

Occupational status scores were taken from Nam, et al. (1975), and added to individual records via occupational codes included in the basic data file. These scores are modified updates, based on the 1970 census, of Census Socioeconomic Status Scores.

The derivation of the scores is detailed in Nam, et al. (1975); in brief, they are based on median levels of education and income for incumbents of each detailed occupation and represent what proportion of people in the experienced labor force (as of 1970) were in occupations having lower combined average education/income. For example, an occupational status score of 50 means that 50 percent of experienced workers were in occupations with lower education/income than the occupation so scored.

The Nam-Powers scores have the advantage, as compared to more widely-used "Duncan" (Or "NORC") scores, of being independent of prestige ratings for occupations. In the sense that they have no footing in popular perceptions of occupations, but represent strictly location in an education/income hierarchy, they are more objective and more easily interpreted with regard to occupational differentiation than the more conventional score.

Nam provides four different scores, representing various segments of the 1970 work force. I have used the most general of these, which covers both males and females

without regard to full- or part-time employment.[1/] The status variates are GOCSTAT4 (1974 status) and GOCSTAT6 (1976 status).

Cases not employed in October 1974 have status scores of zero, to represent their unemployed condition and to avoid loss of cases. Since unemployment in the NLS sample was previously found to average between 10 and 11 percent in 1974, the inclusion of zero scores considerably reduces the 1974 mean.[2/] Though 1976 unemployed were treated likewise, analyses other than that for 1975-76 labor market success use only 1976 employed respondents, hence status means for 1976 are not affected. However, it is unwise to compare 1974 means and 1976 means directly, in equations where both are listed, without checking whether the 1974 mean includes unemployed.

For the dynamic analyses, inclusion required that persons be employed in both years (1974, 1976), hence estimated upward status mobility is not affected by zero values for unemployed persons.

[1/] I originally intended to use the "women only" scale for the special analyses of women's PSE status benefits, but decided against this to provide direct comparability among the analyses. A previous study (Selby, 1979) found that in terms of women's status stratification, PSE is particularly helpful to women. The same is assumed true for 1976.

[2/] Selby, 1979. The approximation depends on whether weighted or unweighted data are used. Neither is reliably more exact. The mean 1974 status for only those employed can be estimated at about 48, rather than 43 as calculated, assuming 10.5 percent unemployed.

Hourly Earnings

The hourly earnings for both 1974 and 1976 are calculated by dividing reported "usual" weekly earnings by "usual" weekly hours, with no adjustment for overtime premium pay. The result, though spoken of as the wage, is actually not a nominal wage rate, but rather the effective wage (or hourly earnings).

To exclude outliers, reported weekly earnings and hours were excluded from analyses if above certain limits.[1/] For both 1974 and 1976, hours in excess of 60 a week were excluded; for 1974, earnings in excess of $500 weekly and, for 1976, earnings over $567 weekly were excluded. The differential results from an adjustment for inflation over the period October 1974 to October 1976, made to allow comparability of earnings in terms of purchasing power. The wage variates are CURRWGE4 (1974 wage in current dollars), ADJWAGE4 (1974 wage in 1976 dollars), and CURRWGE6 (1976 wage).

As was the practice for status scores, persons not

1/ Earnings outliers were excluded from all analyses, not just those with earnings as the dependent variate. The exclusion was based mainly on detailed 1974 summary data for the entire NLS file (22,652 cases), and affects only small proportions of respondents:
1974 - 61 or more weekly hours was reported in 279 of 13,987 usable responses (1.99%). $501 or more per week was reported in 36 of 12,871 usable responses (0.28%).
1976 - 60 or more weekly hours was reported in 603 of 15,111 usable responses (3.99%). $400 or more per week was reported in 272 of 14,815 usable responses (1.84%). The exclusion cutoff ($567) is much higher, hence the proportion above it probably falls below 1%, like the 1974 proportion.

employed in 1974 were assigned zero values for 1974 wages, with consequences like those described above. The same caveats regarding comparisons apply to average wages. Analyses of wage growth are not affected, because only those employed in both years were included. The mean wage for those employed, assuming 10.5 percent 1974 unemployment, is estimated at $3.63.

Satisfaction

Two forms of reported satisfaction are included, satisfaction with pay and fringe benefits (PAYSAT6) and with the job as a whole (JOBSAT6). Each was coded on a four-point scale ranging from "very satisfied" to "very dissatisfied." I modified the original coding so that scores run from +2 to -2 for the respective end points.

No effort was made to assess change in job satisfaction because the available indicators cannot be considered highly reliable (too few items, too limited scale range) and because responses to such inquiries can be much influenced by recent events. These defects are mitigated when responses for a single time are averaged over large groups, but attempts to assess individual changes over a two-year time span would be frustrated by them.

Change Scores

For the dynamic analyses, I analyzed changes in occupational status and hourly earnings for those employed in both 1974 and 1976 (October).

Occupational status change (GOCDIF46) was calculated

by subtraction of the 1974 value from the 1976 value, thus allowing both upward and downward status mobility. No effort was made to adjust for greater difficulty of upward mobility when the initial level is high (relative to others in this sample),[1] but the equations included initial status in order to take account of this. (As already reported, initial status is the most important determinant of the amount of change occurring.)

Two measures of change in earnings were employed, though only the first was analyzed in detail. There were absolute change, where both 1974 and 1976 are in current dollars (CWGECH46), and real change, where both are in 1976 constant dollars (RWGECH46). For the latter, 1974 wages were adjusted for a 13.27 percent increase in the CPI over the period from October 1974 to October 1976, and the change was calculated on the basis of the 1974 adjusted wage.

Earnings changes are reported in terms of percentage increase or decrease from the base year (1974). Hence, the analysis concerns the rate (or pace) of change over the period, rather than the absolute amount as was the case for status change.[2]

The analysis of real wage gains proved virtually

---

[1] Or for greater difficulty of downward mobility when the initial level is low.

[2] I would have preferred a rate measure for status change, but found no conceptually adequate way of measuring this.

identical to that for current wage change, because the 1974 adjusted wage was a uniform multiple of the unadjusted wage. Despite very slightly smaller coefficients for PSE variates with regard to RWGECH46, detailed reporting of the real-wage analysis was, consequently, omitted as unnecessary.

Control Variates

Many control variates do not require extensive comment, hence the glossary explaining the content for variate names (Appendix 5-3) will suffice for them. Those requiring comment are chiefly of two types: variates involving imputation or estimation and variates involving location descriptions added to the base file.

Estimated variates included several describing job content in 1976 and work history:

IDEATIM6, PAPRTIM6, and THNGTIM6 form a set of fairly specific task-content descriptors. In the third follow-up, respondents stated how much time they spent working with ideas, doing paperwork, or working with things, in a categorized scale with choices "none," "very little," "some," and "a great deal." Many left one or more of these items blank. I imputed data, where possible, in the following way:

Reported time allocations were interrelated. Using response codes (1 through 4 for valid responses, 5 for missing data), I crosstabulated pairs of task variates to form cells defined by their combined scores. For example, pairing IDEATIM6 and PAPRTIM6 produced a 5 x 5 crosstabular array, with cells

(1,1) (1,2) (1,3) ... (5,4) (5,5). Using only the valid responses for the third task variate, I computed means for that variate specific to each cell of the crosstabular array described. In the example, there were mean values of THNGTIM6 for each of the 25 cells formed by pairing IDEATIM6 and PAPRTIM6. Likewise, there were 25 cell means for IDEATIM6 and for PAPRTIM6 obtained by pairing the other two task variates.

The appropriate cell means were inserted for missing data cases, using only original file values for the determining cell designations. That is, no variate was estimated on the basis of other estimated values. Where original codes were "missing," the appropriate mean for cells involving missing data was inserted, even though one of the two cross-tabbed variates might have an estimated value for purposes of analysis.

The original scale range of 1 through 4 was revised to 10 through 40 to simplify insertion of fractional means; hence imputed scores like 28 and 33 were possible though the basic scale points for non-missing data were 10, 20, 30 and 40.

NMSBORD6 and ORGSIZE6 were imputed, where necessary, by a different procedure. These distributions tended to be quite skewed, hence I did not feel that means were justifiable as imputed values. Instead, I opted to allocate scores in such a way as to maintain the distribution of known values.

The basic method was similar for both variates, as follows: Within subsets of respondents defined by selected

characteristics associated with the variate to be imputed, I determined the distribution of non-missing values. The proportion of cases in each such category[1/] was then used in an assignment routine which randomly assigned specific values with a probability equal to the proportion of cases having each value.

The last two digits of the RTI identification number, which are random digits, were used as the determining value for assignments. For example, if 25 percent of known cases had a variate value of 3, an interval with a randomly selected start point and covering 25 percent of the values between 00 and 99 (e.g., from 57 through 81) was established for assignment of "3" to missing cases. The missing-data cases whose ID numbers ended in any combination of digits within the designated range were assigned the value specified. Given skewed distributions, this random-assignment procedure was believed likely to yield smaller average errors than would have resulted from assignment of means. Moreover, it maintains the shape and variability of the known distribution.

For NMSBORD6, separate distributions were determined for each of eleven major occupational groupings of the 1976 job (e.g., professional and technical, managerial-administrative, etc.). The number of values assigned varied from

---

[1/] For NMSBORD6, extreme high values for the distribution were consolidated in a single category, for which the assigned value was the median value within the consolidated set.

two (0, 1) for private household workers to ten (0-6, 9, 13, 29) for clerical and twelve (0-5, 7, 10, 15, 21, 26, 50) for professional/technical.

For ORGSIZE6, the breakdown was more complex, involving separate distributions for respondent subsets defined by combinations of major occupational group, sex, racial/ethnic group (white, black and other), and 1976 community size. The questionnaire provided for choice of one organization size category among seven, which I reduced to four: Less than 10; 10 to 99, 100 to 999, and 1,000 or more. Each specified distribution involved assignments to one of these four categories, with probability as described above.

JOBLONG6 and LONGCH46 are related variates representing time in the job held in 1976 and change in seniority between that of the 1974 job and that of the 1976 job. JOBLONG6 was calculated, in months, as the elapsed time from stated start date (month and year) to October of 1976. Claimed (coded) start dates before 1969 or after October 1976 were excluded, making 93 months the maximum for JOBLONG6.

A similar variate was computed for longevity in 1974, with maximum value of 69 months. LONGCH46 was computed by subtraction of JOBLONG4 from JOBLONG6, subject to the restriction that values less than -24 or greater than +24 were set equal to those limits. Thus a respondent with 69 months of seniority in 1974, but (owing to a change of job) only two months in 1976, would have had a computed score of

-67; this was altered to -24. My reason for this limitation was a desire to determine the effect of major losses or gains in seniority on outcomes. To avoid swamping maximum gains of 24 months by numerically large losses, it served the analytical purpose to define a "major" loss as one of about 24 months, i.e., a loss equivalent to the maximum possible gain.

NMEMP45 and NUMEMP46 represent numbers of different primary employers. They are modified versions of directly reported data in the file. There were three basic problems to be resolved by modification of file values: (a) the word "different" in the questionnaire item was apparently interpreted as "different from your present employer" by some respondents, with the result that some employed respondents reported "zero" different employers; (b) double counting of the October 1975 employer was possible, since two separate replies (covering October 1974-75 and October 1975-76) were requested, and (c) some respondents held second ("moonlight") jobs at the same time as their main October job.

A procedure was devised, using replies to the "second" job item, employment status during specified reference weeks, and computed job longevity values, to estimate the probable number of actual primary employers during the specified periods. This basically involved examining the dubious "zero" cases and those reporting more than one employer[1/] to adjust for the

[1/] It is, of course, possible that some who reported one "different" employer may also have meant "different from your present

various sources of error (especially inflated counts) cited.

When job-longevity data for 1975 or 1976 indicated a single employer for the relevant period, missing data on the specific follow-up items were filled with "1," commensurate with modification of the reported zero.

Work experience (WKSWRK24, WKSWRK45, WKSWRK46) data were taken from direct respondent reports. WKSWRK24 was computed from relevant items in the first and second follow-up questionnaires, covering (respectively) weeks from 19[illegible] to 1973 and from 1973 to 1974. Where data for the specific items were missing, but job longevity could be calculated for the 1973 and 1974 jobs, values were assigned by assessing a ratio of 4-1/6 weeks worked for every month of job longevity. For 12 months longevity, this gave an estimate of 50 weeks, allowing two weeks for layoffs.[1/] No more than 50 weeks, of course, were estimated for either year of the 1972-74 period. The estimated values thus give credit for known employment, but may understate actual experience to the extent that other jobs, not covered by the data, were held. An effort was made

---

employer," thus intending to cite a total of two. It was not possible to correct such errors, if any exist, as it was when "zero" was reported. Zero "different employers" is unquestionably incompatible with October 1974 employment, and can be attributed to item misinterpretation. A report of one employer, however, is compatible with current employment, and misinterpretation cannot be assumed. Despite potential response error, a report of one "different" employer must be accepted as based on correct interpretation by the respondent.

[1/] Vacation time is included as weeks worked.

to assure that credit was given for all periods of identifiable work.

WKSWRK46 was computed from two items in the third follow-up, one of which was the basis for WKSWRK45. Missing data were imputed, where possible, in the same manner described for WKSWRK24 component years.

The socioeconomic status (SES) score for the family of origin was taken, without modification, from the basic data file. It bears mention only to clarify the nature of the score, which is described in detail in the third follow-up user's manual (Levinsohn, et al.:1978). The SES score is a factor score derived from principal-components analysis of data for the entire Class of 1972 sample, covering reported family income, parents' education, father's occupational status, and a large array of information on living space and ownership of selected household goods. Unless modified (this one was not), factor scores have mean zero and a standard deviation of 1; thus the reported means for the analysis sample, at roughly -.18, show these respondents to have come from families with just slightly below-average SES. The minority subsample, with a mean of about -.45, is considerably lower than average SES. In all analytic samples, there is enough variability in SES scores to warn against assuming homogeneity for particular groups.

Location variates include those for city size (and change), descriptive factors for 1976 state-of-residence,

measures of socioeconomic change within the 1974 and 1976 states of residence, and mobility differentials associated with interstate movement during the period.

Respondents reported the size of their community by checking one of nine categories supplied. These gave a verbal and numerical description of size (e.g., "a very large city--500,000 people or more") and, for cities of 50,000 and up, distinguished between suburban and central-city residence. I consolidated suburbs with central cities, using the size-class of the city as the relevant measure.

I used published 1970 census data on the number of localities and the total population in each size class to compute the mean population for cities in each class. (Rural places and small towns were estimated from the same data, but less directly.) For the analytical index of city size, I used the natural logarithm of the estimated class mean (CITIND76).

Change in community setting, such as movement from small towns to large cities, was indexed (CITDIFF) by subtracting the 1974 city index from the 1976. This index summarizes both direction (small-to-large, or the reverse) and magnitude of change.

Use of the log of city-class means was predicated on two considerations. First, the means approximate a geometric progression, which is less likely than the log transformation

to be linearly related to outcomes.[1/] Second, because of differentiation in their economic functions, cities tend to vary by orders of magnitude, with smaller satellite cities clustered around much larger ones. As the order of magnitude rises, economies become not only larger but more complex, hence the diversity of employment opportunities tends to increase with order of magnitude.

Consequently, some linear measure of order-of-magnitude is desirable. One option was to assign sequential numeric values to the several size categories supplied in the questionnaire; under this scheme, rural communities of under 10,000 would be scored '1,' cities of 500,000 or more '5.' The logs of mean population are, however, a superior option because they distinguish better between the relative magnitude of cities in adjacent size classes.

The logs are also useful in analyzing the effects of movement among cities, since they produce a measure of the relative size of origin and destination cities whatever the size of the original place, since ln D - ln O = ln D/O. The log subtraction equates a move between cities of 20 and 70 thousand with a move between cities of 70 and 200 thousand,

---

[1/] For the same reason, logs were used to index distance moved between 1974 and 1976 (see MOVIND in Glossary of Variates). The questionnaire categories for movement are finely divided at the low end, with increasingly large intervals up to the open-ended "500 or more miles." These categories produce analytic problems similar to those associated with city size categories.

both involving a threefold difference in size. Although the degree of change in economic complexity is likely to be fairly similar in both instances, subtraction of mean sizes would indicate a much greater change for the latter move. The log subtraction was preferred as a better representation of the real world.

The city-size index can be viewed as either a transformation of size made for analytical reasons or a linear scale of order-of-magnitude, like such well-known scales as the decibel measure of sound or the Richter scale for earthquakes. City size is at best a crude measure of economic complexity, thus the latter interpretation seems preferable in this context because it does not attribute much importance to small differences in size.

Anomalies occurred in the data, since some respondents reported living in the same town in both 1974 and 1976, yet reported differing place sizes. Since suburbs had been consolidated with central cities (and scored the same), movement between the two does not account for these anomalies. More likely, they stem from revised notions or haphazard response; in either case, when respondents reported themselves living in the same town, CITDIFF was automatically set to zero (no change).

In some cases, anomalous changes in reported city size may have occurred as a consequence of rapid population growth or decline in the city itself, especially where change

moved a place from near the upper bound of one category to near the lower bound of the next, or vice versa. My treatment of the data destroyed evidence of such change. I elected to treat "same town" as equivalent to "no change in size" despite this because I was primarily interested in the effect of movement between localities of considerably different size.

The mobility differentials for inter-state movement were similarly included to assess the effects of moving to a different socioeconomic setting. Here, the operative concept is difference in rates of change (for selected indicators) between the origin and destination states. MOBDWGEG (wage growth), for instance, indicates exposure to differing rates of change in the average hourly earnings of production workers. Since states vary in the pace of change in wages, movement between two states might yield wage benefits for those moving simply because wages are rising faster in the destination state.[1/] Not all interstate movements necessarily involve travel to more, rather than less, hospitable environs, and the mobility differentials can take negative values to reflect this.

Each state has a measure of change, from 1974 to 1976, in several indicators of socioeconomic circumstances, including industry employment structure, wage levels, non-agriculture employment, non-residential electrical energy use,

---

[1/] Which may explain the motivation for moving.

and competitive (18 to 44) population.[1/]

Where respondent data (ZIP codes) indicated a change in states between 1974 and 1976, interstate movement was assumed. Change in opportunity, as indicated by pace of change in socioeconomic conditions, was then indexed by subtracting each measure of change in the state of origin (1974) from the corresponding measure in the destination state (1976). The mobility differentials thus index shifts in economic opportunity resulting from interstate mobility.

For the sample as a whole, the mean values of the mobility differentials are quite small. In part, this is because most differences between states were not very large, and in part because the sample--as noted earlier--was not highly mobile. That is, there was no massive interstate migration, as indicated by the sample mean for MOVIND, the measure of distance moved between 1974-1976 (equivalent to less than five miles for the whole sample). Despite their small mean values, several of the mobility differentials appear as important influences on changing status and earnings.

Changing opportunity within states is similarly indexed by two sets of variables designated R4---J45 and R6---J56. "Opportunity" is again defined in terms of the pace of socioeconomic change, but here opportunity differences are measured

---

[1/] "Competitive" here refers to that portion of the population with whom the class of 1972 graduates are most likely to compete for jobs.

over time periods within each state, and change in the occupational status and earnings of each respondent is related to opportunity differences within his state.

The set of variates R4---J45 measures change in selected indicators during 1974 to 1975, in the state of residence in 1974. Where possible, they are October-to-October change, but otherwise they are year-to-year changes best viewed as mid- or end-of-year changes. The set R6---J56 is equivalent, but measures change from 1975 to 1976 in the 1976 state of residence.

Where no interstate move occurred, these measures distinguish the impacts of a period of recession (1974-75) and of recovery (1975-76) within a single state. Where a move did occur, the recession-recovery effects are split evenly between the origin and destination states.

Two unemployment measures are included in each set, one for insured and the other for total unemployment. Changes in insured unemployment rates reflect the impact of recession/recovery on experienced workers, while total unemployment rates show effects for all labor force participants, many of whom are new entrants or re-entrants. Change in non-residential electrical energy use serves as a proxy for cutbacks and advances in industrial production and commercial activity. Other variates in these sets are self-explanatory. (See glossary, App. 5-3.)

Finally, there are six descriptors of the 1976 state of residence which measure the state's standing, in comparison to others, on each of several different summary attributes. These include (F1) a "socioeconomic power" dimension, and others representing (F2) SES level of the state's population; (F3) a mineral-resource development dimension; (F4) a socioeconomic structure dimension; (F5) a growth dimension; and (F6) a distress dimension.

These are factor scores, derived by principal-components analysis of a large array of demographic and economic data covering conditions in 1976 and change from 1970 to 1976 for each state.[1/] The factor analyses were performed with states as the unit of analysis, the resulting factor scores having been added later to the individual records.[2/]

According to conventional practice, the label applied to each factor seeks to represent the combination of individual variates most closely associated with the factor, as indicated by high factor loadings. Table 18 gives the factor structure matrix for the rotated factors, and Table 17 the factor scores for states (App. 5-1).

[1/] Factors were derived using oblique rotation with a varimax criterion. Factor correlations are given in Table 18, App. 5-1. Data are from various Federal publications, chiefly Census Bureau and BLS products.

[2/] Alaska was excluded from the factor analysis.

As may be observed in the latter, certain factors have a geographical interpretation, most notably #3 (mineral resource development), which yields high scores for states all or partly located in the Rocky Mountains, the Southwest, or Appalachia. This factor tends to distinguish states with "boom" economies based on development of energy resources (coal, oil, gas, oil shale) during the period after the 1973 oil embargo. States scoring high on urban-industrial distress (F6) tend to be in the old industrial region of the nation (northeastern quadrant). Those scored high on growth (F5) are mainly the much-discussed "Sun Belt."

Other factors are less closely allied with geographic regions. Factor 1 is intermediate in this respect, with a cluster of high-scoring states in the northeast quadrant, but also three widely-dispersed states in the southern tier. Among the ten highest-scoring, New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, and Illinois form a contiguous block of established industrial states, while California, Texas, and Florida are spaced fairly evenly from west to east on the southern borders. These ten states are quickly recognizable as those with great social, political, and economic importance for the nation, hence the name (Socioeconomic Power) applied to the factor. At the other extreme of this scale, the ten lowest-scoring states include a contiguous block of Rocky Mountain and Great Plains states (Nevada, Idaho, Montana,

North Dakota, South Dakota, Wyoming), a block of New England states (Maine, New Hampshire, Vermont), and New Mexico, out of step with its near neighbors. Clearly, despite some regional connotations, factor one does not correspond closely to geographic areas.

Factor 2, population SES, has high-scoring states scattered throughout the nation, but those in the lowest quintile are mainly in the southeastern quadrant: Louisiana, Arkansas, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Tennessee, and Kentucky. Regionally awkward New Mexico is the tenth. Geographic connotations of this factor are chiefly confined to distinguishing the Old South from other parts of the nation.

Factor 4 is the hardest to define and the least regionally identifiable of the set. Reflecting mainly the industry structure of the non-agricultural labor force, its hallmarks are (a) a low proportion of manufacturing workers, (b) high proportions of government and service workers, (c) fast growth in manufacturing share, (d) declining proportions of trade and government workers, (e) slow growth in average wages, and (f) high minority population proportions.

This set of characteristics obviously is related to industrial development, but the inclusion of major industrial states such as California, New York, and Louisiana, as well as highly specialized Nevada (private services) and

the District of Columbia (government), among the top ten scores renders that interpretation suspect.

The conceptual content of Factor 4 is clarified by observing the ten lowest-scoring states. Here are Ohio, Pennsylvania, Michigan, New Jersey, and Indiana, all long-established industrial states with little overall growth during the early seventies. Here also are North Carolina, Tennessee, and Wisconsin, second-line industrial states with mixed economies and below-average overall growth in the early seventies, and long-rural New Hampshire and South Dakota. The common denominator among these states seems to be long-established stability

With the odd mix of states among those scoring highest, the factor seems to define structural transition (or instability), marking chiefly shifting industrial structures. In most cases, the high-scoring states are industrializing, but anomalous New York may be included because of increasing dependence on service employment as other kinds of industry move away. Since "industrial development" seems an inappropriate general term, I prefer to refer to Factor 4 as indicating "structural transition."

To summarize, though most of the descriptive factors have at least some geographic interpretations, they are better viewed as describing socioeconomic environments with substantial influence on employment opportunity for all workers. Since geography is imperfectly allied to most traits,

the factor scores are more useful than simple regional indicators as controls for environmental influence.

To close, I note that I have omitted many important but quite technical details concerning problems with file data and my efforts to compensate for them. The technical appendix to my previous study (Selby, 1979) supplies much of this for the first and second follow-ups, where most of the serious problems occurred. Despite the omission of this detail, the reader should by now be aware that the data are not of the very best quality. Where response reliabilities have been studied, they are often much lower than desirable; in fact, one report by RTI recommends strongly against the use of path (structural equations) analysis on this ground (Conger, et al., 1976). At least one independent researcher has roundly denounced this data base as follows:

> The HS72 data were collected using self-administered questionnaires, and the public use tapes were provided in an uncleaned, nearly undecipherable form. For this study, my staff and I spent <u>months</u> of our time and well over $1000 in computer costs just getting these data into a semi-useable format. ... So, while results are reported here, the reader is urged not to take them as conclusive. (Olson, 1978:48)

Olson's comments are included to underscore my own warnings regarding the uncertainties surrounding the results.

References

Astin, A. W., M. R. King, and G. T. Richardson; The American Freshman: National Norms for Fall 1975. Los Angeles: University of California at Los Angeles--American Council on Education.

Blalock, H. M. Social Statistics. New York: McGraw-Hill. 1960

Carnegie Commission on Higher Education. The Open-Door Colleges: Policies for Community Colleges. New York: McGraw-Hill. 1970

Conger, A. J., J. C. Conger, and J. A. Riccobono. Reliability and Validity of National Longitudinal Study Measures: (etc.). Research Triangle Park, N.C.: Research Triangle Institute, CERE. 1976

Grant, W. V., and C. G. Lind; Digest of Education Statistics, 1976 Edition. Washington, D.C.: National Center for Education Statistics. 1977

Levinsohn, J. R., L. B. Henderson, J. A. Riccobono, and R. P. Moore. National Longitudinal Study: Base Year, First, Second and Third Follow-up Data File Users Manual. Research Triangle Park, N.C.: Research Triangle Institute, CERE. 1978

Nam, C. B., J. LaRocque, M. G. Powers, and J. Holmberg; "Occupational Status Scores: Stability and Change." Pages 570-575 in Proceedings of the Social Statistics Section. Washington: American Statistical Association. 1975

Olson, L. S. An Empirical Study of Decisions Involving Post-Secondary Vocational School Training; Final Report. Washington: DHEW: Office of Education, Bur. of Occupational and Adult Ed. (mimeo). 1978

Selby, D. Impact of Short-Term Postsecondary Education on Early Work Experience. Washington: Joseph Froomkin Inc. 1979

Selby, D. and J. Froomkin. Participation in Postsecondary Education: An Outline Sketch. Washington: Joseph Froomkin, Inc. 1979

APPENDIX 1-1

Final Equations for Cross-Sectional Outcomes--

Table 5A: Labor Market Success, 1975-76
Table 5B: 1976 Occupational Status
Table 5C: 1976 Hourly Earnings
Table 5D: Satisfaction with Pay, 1976
Table 5E: Overall Job Satisfaction, 1976

Note: The asterisk (*) indicates statistical significance of the coefficient at (nominal) $p = .025$. See Ch. 5 for discussion of nominal probability. Appendix 5-3 provides a glossary of variate names, in alphabetic order.

Table 5A: Factors Affecting LABOR MARKET SUCCESS, 1975-76; by Analysis Sample - Final Analysis

OUTCOME: LMSUC56

Explanatory Variates	All 1976 Labor Force Participants			Women 1976 Labor Force Participants			Minority 1976 Labor Force Participants		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
MINORITY	.008	1.56	.018	.004	.53	.009	-	-	-
MALE	-.004	.95	-.012	-	-	-	-.005	.44	-.013
SES	.0005	.37	.004	.006	1.13	.020	.0004	.21	.006
HSGRADES	.001	.78	.010	.002	.74	.013	-.002	.53	-.015
HSACAD	-.021	3.92*	-.051	-.016	2.11	-.041	-.016	1.02	-.030
HSVOC	-.006	1.25	.016	-.004	.58	-.011	.002	.21	.006
SMPSENCR	.002	.38	.005	-.008	1.13	-.021	-.002	.17	-.005
PSECRDT	.025	3.92*	.047	.021	2.39*	.042	.028	1.71	.049
VOCDGVOC	.018	1.23	.014	-.006	.26	-.004	.010	.19	.005
VOCDGCOL	.069	3.28*	.037	.042	1.63	.027	.066	.99	.027
ACADG2YR	.014	1.12	.013	.002	.12	.002	.130	1.31	.035
WKSWRK24	.0003	3.70*	.046	.00003	.26	.005	.0004	1.98	.060
GOCSTAT4	.0005	4.54*	.056	.0005	2.93*	.054	.001	3.51*	.106
CURRWGE4	-.003	2.53*	-.031	-.004	1.98	-.035	-.003	.97	-.029
NMEMP45	.004	1.52	.017	.005	1.31	.022	.014	2.09	.056
WKSWRK45	.005	29.29*	.348	.005	18.82*	.325	.005	10.97*	.319
INTERCEPT	.645	-	-	.698	-	-	.660	-	-
MULT R:	.381			.348			.387		
R^2:	.145			.121			.150		
SEE:	.159			.158			.176		
OUTCOME-									
MEAN:	.939			.944			.931		
S.D.:	.1719			.1680			.1895		
WEIGHTED N:	6851			3365			1207		

Table 5B: Factors Affecting 1976 OCCUPATIONAL STATUS, by Analysis Sample - Final Analysis

OUTCOME: GOCSTAT6

Explanatory Variates	All 1976 Employees			Woman 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
MINORITY	-2.297	4.04*	-.048	-2.688	3.52*	-.058	-	-	-
MALE	4.356	8.81*	.121	-	-	-	5.570	4.88*	.152
SES	.331	2.31*	.026	.683	1.42	.023	.177	1.11	.031
HSGRADES	.140	.82	.010	.379	1.74	.028	- .238	.55	-.016
HSACAD	2.409	4.26*	.055	3.424	4.64*	.083	2.262	1.43	.043
HSVOC	1.386	2.96*	.037	1.862	3.08*	.054	- .388	.35	-.011
SMPSENCR	1.483	3.00*	.038	1.156	1.81	.031	- .330	.26	-.008
PSECRDT	.077	.12	.001	- .490	.62	-.010	.919	.57	.017
VOCDGVOC	2.540	1.67	.019	1.154	.52	.008	-3.920	.75	-.021
VOCDGCOL	3.895	1.88	.021	4.520	2.01	.031	4.725	.82	.023
ACADG2YR	4.006	3.03*	.036	1.498	1.05	.017	-19.065	1.65	-.045
R6POWRF1	- .593	3.08*	-.040	- .540	2.20	-.038	- .911	1.94	-.065
R6SESF2	- .009	.03	-.0004	.230	.68	.012	1.487	2.13	.077
R6MNRLF3	.226	.65	.008	- .612	1.35	-.021	.073	.08	.003
R6SVCMF4	.168	.46	.007	- .114	.27	-.005	- .119	.18	-.006
R6GRTHF5	- .128	.51	-.007	.372	1.21	.022	- .625	1.20	-.038
R6DSTRF6	.920	2.96*	.036	.938	2.35*	.039	.478	.47	.018
CITIND76	.649	5.72*	.068	.770	5.20*	.083	1.180	4.24*	.125
WKSWRK24	- .012	1.24	-.016	- .027	2.28*	-.039	- .046	1.99	-.062
GOCSTAT4	.274	24.15*	.301	.311	19.25*	.338	.278	9.49*	.304
CURRWGE4	- .243	2.13	-.026	- .208	1.08	-.018	- .148	.54	-.016
NMEMP45	- .631	2.08	-.024	- .796	2.10	-.032	.722	.95	.027
WKSWRK45	.029	1.32	.017	.025	.92	.015	.059	1.27	.040
LMSUC56	1.787	1.05	.013	.981	.47	.008	2.669	.67	.020
GOVRNMT6	2.729	3.96*	.045	1.510	1.94	.029	4.584	3.03*	.087
PTWRK6	-3.361	3.84*	-.044	-3.562	3.81*	-.053	-1.787	.71	-.020

Table 5B: (Cont'd)

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
ORGSIZE6	.375	4.84*	.056	.425	4.18*	.064	.319	1.60	.047
JOBLONG6	-.025	2.03	-.026	- .025	1.55	-.026	-.060	1.89	-.060
THNGTIM6	-.034	1.65	-.019	- .036	1.51	-.023	.019	.39	.011
IDEATIM6	.173	7.62*	.092	.173	6.01*	.096	.077	1.45	.044
PAPRTIM6	.448	20.58*	.285	.461	15.95*	.279	.451	9.04*	.295
NMSBORD6	.267	9.77*	.112	.297	7.20*	.108	.355	4.17*	.117
INTERCEPT	12.14	-	-	10.64	-	-	10.31	-	-
MULT R:	.577			.637			.595		
R^2:	.333			.406			.354		
SEE:	14.81			13.30			14.96		
OUTCOME-									
MEAN:	48.8			49.0			44.9		
S.D.:	18.07			17.16			18.30		
WEIGHTED N :	5497			2781			929		

Table 5C: Factors Affecting 1976 HOURLY EARNINGS by Analysis Sample - Final Analysis

OUTCOME: CURRWGE6

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
MINORITY	-.147	3.05*	-.036	-.086	1.56	-.028	-	-	-
MALE	.873	20.68*	.284	-	-	-	.825	8.70*	.273
SES	.009	.76	.009	.140	4.04*	.073	-.010	.78	-.022
HSGRADES	.034	2.36*	.029	.029	1.86	.033	-.075	2.10	-.062
HSACAD	.114	2.38*	.031	-.012	.23	-.005	.340	2.61*	.078
HSVOC	.011	.27	.003	.025	.56	.011	.136	1.52	.045
SMPSENCR	-.050	1.19	-.015	-.036	.79	-.015	-.117	1.15	-.036
PSECRDT	.064	1.17	.014	.180	3.16*	.057	.040	.30	.009
VOCDGVOC	.113	.88	.010	.471	2.95*	.049	-.329	.77	-.021
VOCDGCOL	.161	.92	.010	.235	1.45	.025	1.114	2.35*	.064
ACADG2YR	.205	1.83	.022	.404	3.91*	.071	1.008	1.06	.029
R6POWRF1	.040	2.45*	.031	.044	2.50*	.047	.039	1.01	.034
R6SESF2	.214	9.57*	.121	.090	3.70*	.070	.310	5.40*	.195
R6MNRLF3	.162	5.52*	.065	.022	.66	.012	.016	.21	.007
R6SVCMF4	-.039	1.28	-.019	.008	.27	.006	-.002	.04	-.001
R6GRTHF5	.029	1.36	.020	.019	.85	.017	-.056	1.30	-.041
R6DSTRF6	.058	2.21	.027	.125	4.33*	.079	-.096	1.14	-.043
CITIND76	.053	5.51*	.066	.078	7.29*	.129	.034	1.48	.044
WKSWRK24	.001	1.36	.017	.002	2.60*	.050	.002	.89	.028
GOCSTAT4	.002	1.65	.022	.002	1.94	.040	.002	.62	.021
CURRWGE4	.226	23.37*	.283	.212	15.37*	.277	.195	8.67*	.262
NMEMP45	.047	1.83	.021	-.018	.64	-.011	-.066	1.05	-.030
WKSWRK45	-.002	1.30	-.016	-.0007	.36	-.007	.006	1.53	.048
LMSUC56	.273	1.89	.023	.392	2.63*	.048	-.962	2.95*	-.088
GOVRNMT6	.088	1.50	.017	.279	4.97*	.083	.165	1.33	.038
PTWRK6	.288	3.87*	.044	.010	1.47	.025	.648	3.15*	.090

Table 5C: (Cont'd)

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
ORGSIZE6	.087	13.21*	.152	.062	8.40*	.143	.082	5.02*	.145
JOBLONG6	.008	7.97*	.101	.005	3.93*	.074	.008	3.14*	.100
THNGTIM6	.0005	.30	.004	-.003	1.50	-.025	.004	1.04	.029
IDEATIM6	.009	4.78*	.058	.002	1.11	.020	.009	2.04	.062
PAPRTIM6	-.016	8.32*	-.119	-.011	5.00*	-.101	-.008	1.94	-.066
NMSBORD6	-.0006	.24	-.003	.0007	.23	.004	-.012	1.76	-.050
GOCSTAT6	.006	5.08*	.069	.006	4.46*	.094	.009	3.38*	.112
INTERCEPT	1.50	-	-	1.51	-	-	2.42	-	-
MULT R:	.579			.523			.603		
R^2:	.335			.274			.364		
SEE:	1.25			.956			1.23		
OUTCOME -									
MEAN:	4.20			3.62			4.01		
S.D.:	1.53			1.12			1.51		
WEIGHTED N:	5497			2781			929		

Table 5D: Factor Affecting SATISFACTION WITH PAY AND FRINGE BENEFITS, by Analysis Sample - Final Analysis

OUTCOME: PAYSAT6

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
MINORITY	-.086	2.09	-.028	-.142	2.27*	-.045	-	-	-
MALE	-.294	7.88*	-.129	-	-	-	-.320	3.53*	-.133
SES	.013	1.24	.016	.044	1.11	.022	.004	.31	.010
HSGRADES	.007	.57	.008	.002	.10	.002	-.011	.32	-.011
HSACAD	.021	.51	.007	-.016	.26	-.006	-.097	.81	-.028
HSVOC	.095	2.82*	.040	.158	3.19*	.068	.050	.61	.021
SMPSENCR	.010	.27	.004	.020	.38	.008	.106	1.14	.041
PSECRDT	-.009	.19	-.003	-.105	1.62	-.032	-.187	1.55	-.053
VOCDGVOC	.063	.58	.008	-.104	.58	-.011	-.714	1.81	-.057
VOCDGCOL	-.208	1.39	-.018	-.565	3.08*	-.057	.582	1.33	.042
ACADG2YR	.123	1.29	.017	-.014	.12	-.002	.933	1.07	.033
R6POWRF1	-.030	2.19	-.032	-.013	.63	-.013	.033	.92	.036
R6SESF2	.004	.18	.003	-.018	.64	-.013	.029	.55	.023
R6MNRLF3	.024	.96	.013	.045	1.23	.024	-.070	.99	-.037
R6SVCMF4	-.016	.62	-.011	.016	.46	.011	-.041	.81	-.029
R6GRTHF5	.047	2.55*	.042	.061	2.44*	.054	-.018	.46	-.017
R6DSTRF6	-.087	3.87*	-.053	-.126	3.86*	-.077	-.132	1.71	-.075
CITIND76	-.025	3.01*	-.041	-.041	3.33*	-.066	.008	.40	.014
WKSWRK24	.003	4.37*	.063	.002	2.18	.046	.002	1.03	.037
GOCSTAT4	.002	2.41*	.036	-.00006	.04	-.001	.004	1.78	.068
CURRWGE4	-.016	1.83	-.027	-.013	.80	-.017	-.068	3.16*	-.115
NMEMP45	-.026	1.21	-.016	.006	.20	.004	-.145	2.53*	-.083
WKSWRK45	.001	.82	.012	-.0007	.33	-.007	-.002	.56	-.020
LMSUC56	-.150	1.22	-.017	-.472	2.79*	-.056	.392	1.30	.045
GOVRNMT6	.103	2.07	.027	.135	2.12	.039	.066	.58	.019
PTWRK6	-.321	5.07*	-.066	-.159	2.07	-.038	-.225	1.18	-.039

Table 5D: (Cont'd)

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
ORGSIZE6	.021	3.71*	.050	.016	1.86	.035	.012	.77	.026
JOBLONG6	.00006	.07	.001	.002	1.90	.039	.002	.80	.030
THNGTIM6	.0008	.51	.007	.0009	.46	.008	.002	.42	.013
IDEATIM6	-.002	.94	-.013	-.008	3.17*	-.062	.003	.84	.030
PAPRTIM6	-.0007	.44	-.007	.0008	.31	.007	-.013	3.18*	-.125
NMSBORD6	-.002	1.11	-.015	-.009	2.71*	-.050	.010	1.51	.049
GOCSTAT6	-.0001	.12	-.002	.002	1.18	.027	.002	.68	.026
CURRWGE6	.259	22.52*	.348	.305	14.14*	.296	.263	8.57*	.331
INTERCEPT	-.334	-	-	.124	-	-	-.514	-	-
MULT R:	.364			.353			.389		
R^2:	.132			.125			.152		
SEE:	1.07			1.09			1.13		
OUTCOME-									
MEAN:	.729			.716			.590		
SD:	1.14			1.15			1.20		
WEIGHTED N:	5497			2781			929		

Table 5E: Factors Affecting SATISFACTION WITH JOB AS A WHOLE by Analysis Sample - Final Analysis

OUTCOME: JOBSAT6

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
MINORITY	.024	.68	.009	.020	.39	.007	-	-	-
MALE	-.114	3.64*	-.056	-	-	-	-.047	.69	-.023
SES	.005	.54	.007	.046	1.46	.027	.007	.76	.022
HSGRADES	-.004	.38	-.005	-.005	.38	-.007	-.010	.38	-.012
HSACAD	.011	.32	.004	-.078	1.61	-.032	-.005	.05	-.002
HSVOC	.080	2.84*	.038	.016	.40	.008	.109	1.74	.053
SMPSENCR	-.005	.16	-.002	-.022	.54	-.010	.037	.53	.017
PSECRDT	.074	1.90	.024	.102	1.97	.036	-.074	.81	-.025
VOCDGVOC	.147	1.61	.020	.250	1.73	.029	.019	.06	.002
VOCDGCOL	.118	.95	.011	.135	.92	.016	-.281	.85	-.024
ACADG2YR	.133	1.67	.021	.242	2.58*	.047	-1.12	1.71	-.048
R6POWRF1	.003	.22	.003	.027	1.67	.032	-.048	1.79	-.062
R6SESF2	-.004	.23	-.003	.009	.42	.008	.051	1.27	.048
R6MNRLF3	.051	2.45*	.031	.049	1.65	.029	.049	.92	.031
R6SVCMF4	-.022	1.02	-.016	-.104	3.80*	-.079	-.018	.46	-.015
R6GRTHF5	.076	4.98*	.077	.130	6.46*	.131	.091	3.07*	.102
R6DSTRF6	.033	1.74	.022	.053	2.00	.037	-.040	.68	-.027
CITIND76	-.021	3.04*	-.039	-.032	3.22*	-.058	-.075	4.69*	-.144
WKSWRK24	.001	1.90	.025	-.00006	.08	-.001	.002	1.32	.043
GOCSTAT4	-.0006	.83	-.012	-.001	1.09	-.023	-.0008	.44	-.015
CURRWGE4	.008	1.09	.015	.023	1.80	.034	.0008	.04	.002
NMEMP45	.020	1.08	.013	.026	1.05	.018	.005	.10	.003
WKSWRK45	-.00007	.05	-.0007	-.0009	.52	-.010	.003	.98	.032
LMSUC56	.115	1.12	.015	.023	.17	.003	-.135	.59	-.019
GOVRNMT6	.00001	0	.0000	-.088	1.72	-.029	-.096	1.11	-.033
PTWRK6	.021	.40	.005	-.033	.54	-.009	-.036	.25	-.008

Table 5E: (Cont'd)

Explanatory Variates	All 1976 Employees			Women 1976 Employees			Minority 1976 Employees		
	(B)	(t)	(Beta)	(B)	(t)	(Beta)	(B)	(t)	(Beta)
ORGSIZE6	-.029	6.15*	-.077	-.024	3.59*	-.062	-.017	1.49	-.045
JOBLONG6	-.0009	1.19	-.016	.0002	.24	.005	-.001	.58	-.019
THNGTIM6	.001	1.00	.012	.003	1.94	.032	.002	.58	.017
IDEATIM6	.020	14.58*	.188	.017	9.07*	.162	.015	5.06*	.160
PAPRTIM6	.003	1.91	.029	.006	3.23*	.066	.005	1.66	.059
NMSBORD6	.002	1.37	.017	.005	1.95	.033	.002	.48	.014
GOCSTAT6	.003	3.76*	.054	.002	1.35	.029	.004	1.97	.068
CURRWGE6	-.034	3.39*	-.051	-.020	1.13	-.022	-.059	2.46*	-.089
PAYSAT6	.391	34.54*	.435	.401	26.27*	.458	.425	16.89*	.506
INTERCEPT	-.064	-	-	.094	-	-	.456	-	-
MULT R:	.499			.518			.565		
R^2:	.249			.263			.320		
SEE:	.893			.869			.849		
OUTCOME-									
MEAN:	.900			.955			.830		
SD:	1.03			1.01			1.01		
WEIGHTED N	5497			2781			929		

APPENDIX 2-1

Table 6: Correlations between PSE and Control or Outcome Variates

TABLE 6: Simple Correlations, Schooling Variates with Control and Outcome Variates

Percentage of Sample:	(51.4)	(30.2)	(12.8)	(1.9)	(0.99)	(2.7)
CONTROL VARIATES	HSNOPSE	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
SES	-.078	.077	-.002	.004	.021	.011
MALE	.037	.027	-.057	.038	-.040	-.081
MINORITY	.031	-.002	.006	-.032	-.010	-.070
HSGRADES	-.153	.066	.044	.038	.042	.135
HSACAD	-.240	.155	.045	.071	.034	.127
HSVOC	.146	-.129	-.007	-.019	-.013	-.045
HSGEN 1/	.058	-.003	-.031	-.042	-.015	-.063
R6POWRF1	-.035	.065	-.044	-.035	.012	.036
R6SESF2	-.037	.030	.001	.004	-.029	.040
R6MNRLF3	.066	-.043	-.026	.003	-.010	-.024
R6SVCMF4	-.107	.129	-.012	-.046	.031	.007
R6GRTHF5	-.086	.087	.028	-.013	.033	-.049
R6DSTRF6	.016	-.004	-.022	-.043	-.011	.053
CITIND76	-.091	.110	.009	-.057	-.006	.003
WKSWRK24	.262	-.121	-.082	-.089	-.115	-.149
GOCSTAT4	-.092	.018	.042	.059	.032	.078
CURRWGE4	.011	.019	-.033	.004	-.010	-.014
NMEMP45	-.091	.086	.011	.046	-.033	-.003
WKSWRK45	-.004	-.026	.018	.024	.002	.024
LMSUC56	.008	-.043	.024	.015	.030	.016
GOVRNMT6	-.041	0	.038	0	.003	.048
PTWRK6	-.049	.049	-.001	-.003	.009	.011
ORGSIZE6	-.006	.040	-.043	-.003	-.016	.009
JOBLONG6	.196	-.145	-.034	-.034	-.052	-.064
TIMGTIM6	.046	-.035	-.025	.035	-.010	-.013
IDEATIM6	-.051	-.012	.044	.019	.046	.057
PAPRTIM6	-.106	.046	.056	-.015	.031	.073
NMSBORD6	.006	.018	-.030	.009	-.020	0
GOCSTAT6	-.119	.067	.017	.037	.039	.089
CURRWGE6	.011	-.002	-.022	.024	-.012	.006
PAYSAT6	.016	-.018	-.006	.013	-.024	.019
JOBSAT6	-.020	-.028	.035	.025	.014	.039

TABLE 6: (Cont'd)

Notes: A glossary of variates is supplied in Appendix 5-3. Variate means and standard deviations are given in Appendix 5-2. Matrix applies to those employed in October 1976 (main cross-sectional sample) only. All correlations of .003 or greater are statistically significant at $p < .001$, according to an F-test of significance with degrees of freedom for error variance adjusted to 3790 to compensate for use of weighted data. (See Blalock, 1960:304.)

1/ HSGEN is an implied control variate indicating enrollment in a general high school curriculum.

APPENDIX 2-2

Tables 8A - 8F:

Effects of PSE on Labor Market Success and Intervening Variates

Table 8A: Effect of PSE on Early Work Experience

DEPENDENT VARIABLE: WKSWRK24

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENT FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERROR OF ESTIMATE
SES	NS							
MALE	.111							
MINORITY	-.099						.022	23.15
HSGRADES	.032							
HSACAD	-.082							
HSVOC	.095						.043	22.90
PSE VARIATES		-.203	-.132	-.114	-.115	-.180	.117	22.00

Table 8B: Effect of PSE on Initial (1974) Occupational Status

DEPENDENT VARIABLE: GOCSTAT4

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENT FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERROR OF ESTIMATE
SES	.065							
MALE	NS							
MINORITY	-.103						.016	20.08
HSGRADES	.102							
HSACAD	.057							
HSVOC	.077						.033	19.91
PSE VARIATES		.029	.059	.055	.027	.060	.042	19.83
WKSWRK24	.218	.074	.088	.080	.052	.099	.084	19.40

Table 8C: Effect of PSE on Initial (1974) Hourly Earnings

DEPENDENT VARIABLE: CURRWGE4

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENTS FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERROR OF ESTIMATE
SES	.030							
MALE	.258							
MINORITY	-.032						.069	1.83
HSGRADES	NS							
HSACAD	.038							
HSVOC	.033						.070	1.83
PSE VARIATES		NS	NS	NS	NS	NS	.071	1.83
WKSWRK24	.145	NS	NS	NS	NS	NS	.090	1.81
GOCSTAT4	.279	NS	NS	NS	NS	NS	.161	1.74

Table 8D: Effect of PSE on Number of Employers, 1974-75

DEPENDENT VARIABLE: NMEMP45

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENT FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERROR OF ESTIMATE
SES	NS							
MALE	NS							
MINORITY	NS						NS	.759
HSGRADES	-.034							
HSACAD	NS							
HSVOC	NS						.003	.758
PSE VARIATES		.080	NS	.046	NS	NS	.011	.755
WKSWRK24	-.080	.064	NS	.037	-.031	NS	.016	.753
OCCSTAT4	-.068	.069	NS	.043	-.027	NS	.021	.752
CURRWGE4	-.037	.069	NS	.042	-.027	NS	.022	.751

Table 8E: Effect of PSE on Weeks Worked, 1974-75

DEPENDENT VARIABLE: WKSWRK45

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENTS FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YE	R^2	STD ERROR OF ESTIMATE
SES	NS							
MALE	NS							
MINORITY	-.078						.008	11.19
HSGRADES	.063							
HSACAD	NS							
HSVOC	.056						.014	11.16
PSE VARIATES		-.042	NS	NS	NS	NS	.017	11.15
WKSWRK24	.263	NS	.045	.047	.036	.054	.078	10.80
GOCSTAT4	.157	NS	.031	.034	.027	.038	.100	10.67
CURRWGE4	.032	NS	.032	.035	.028	.038	.101	10.66
NMEMP45	-.104	NS	.033	.039	NS	.038	.112	10.60

Table 8F: Effect of PSE on 1975-76 Labor Market Success

DEPENDENT VARIABLE: LMSUC56

CONTROL VARIATES- ALL PRECEDING PLUS:	ENTRY COEFFICIENT, ADDED VARIATE:	STANDARDIZED COEFFICIENTS FOR SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERROR OF ESTIMATE
SES	NS							
MALE	-.030							
MINORITY	NS						.001	.172
HSGRADES	.042							
HSACAD	-.044							
HSVOC	NS						.005	.172
PSE VARIATES		NS	.048	NS	.035	NS	.009	.171
WKSWRK24	.144	NS	.067	.035	.052	.037	.027	.170
GOCSTAT4	.101	NS	.058	NS	.047	NS	.037	.169
CURRWGE4	NS	NS	.058	NS	.046	NS	.037	.169
NMEMP45	NS	NS	.058	.028	.046	NS	.037	.169
WKSWRK45	.348	NS	.047	NS	.037	NS	.145	.159

APPENDIX 2-3

Figures 1A - 1F:

Models of PSE Influence on 1975-76 Labor Market Success

Note: The diagrams in this appendix are not complete path diagrams. Background and 1974 wage variates present in the relevant equations have been omitted for simplicity. Values shown are standardized regression (path) coefficients, but owing to data of doubtful reliability they should be construed as suggestive only.

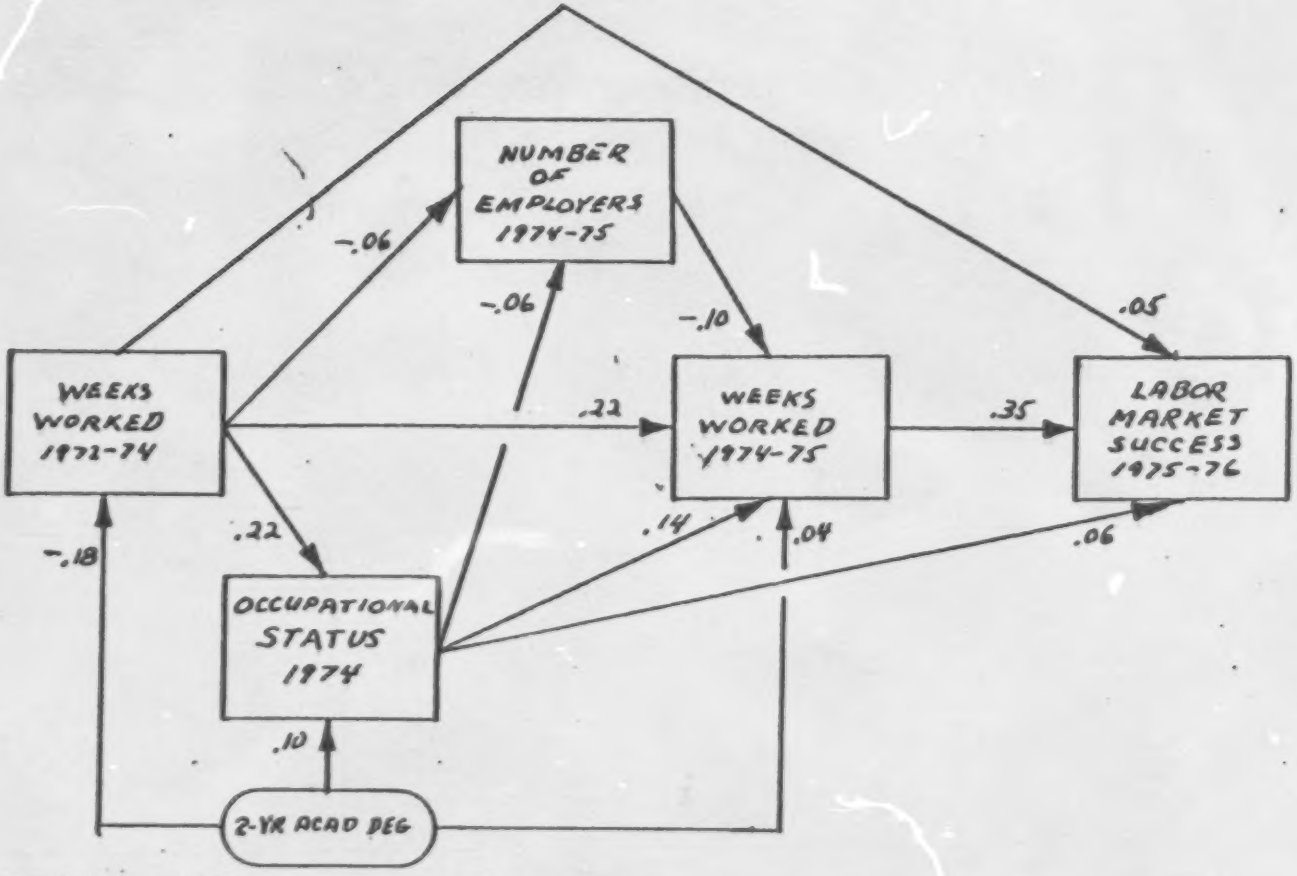

Fig. 1A: Flow of Influence to 1975-76 Labor Market Success, from Two-Year Academic Degree

(See general note for this appendix.)

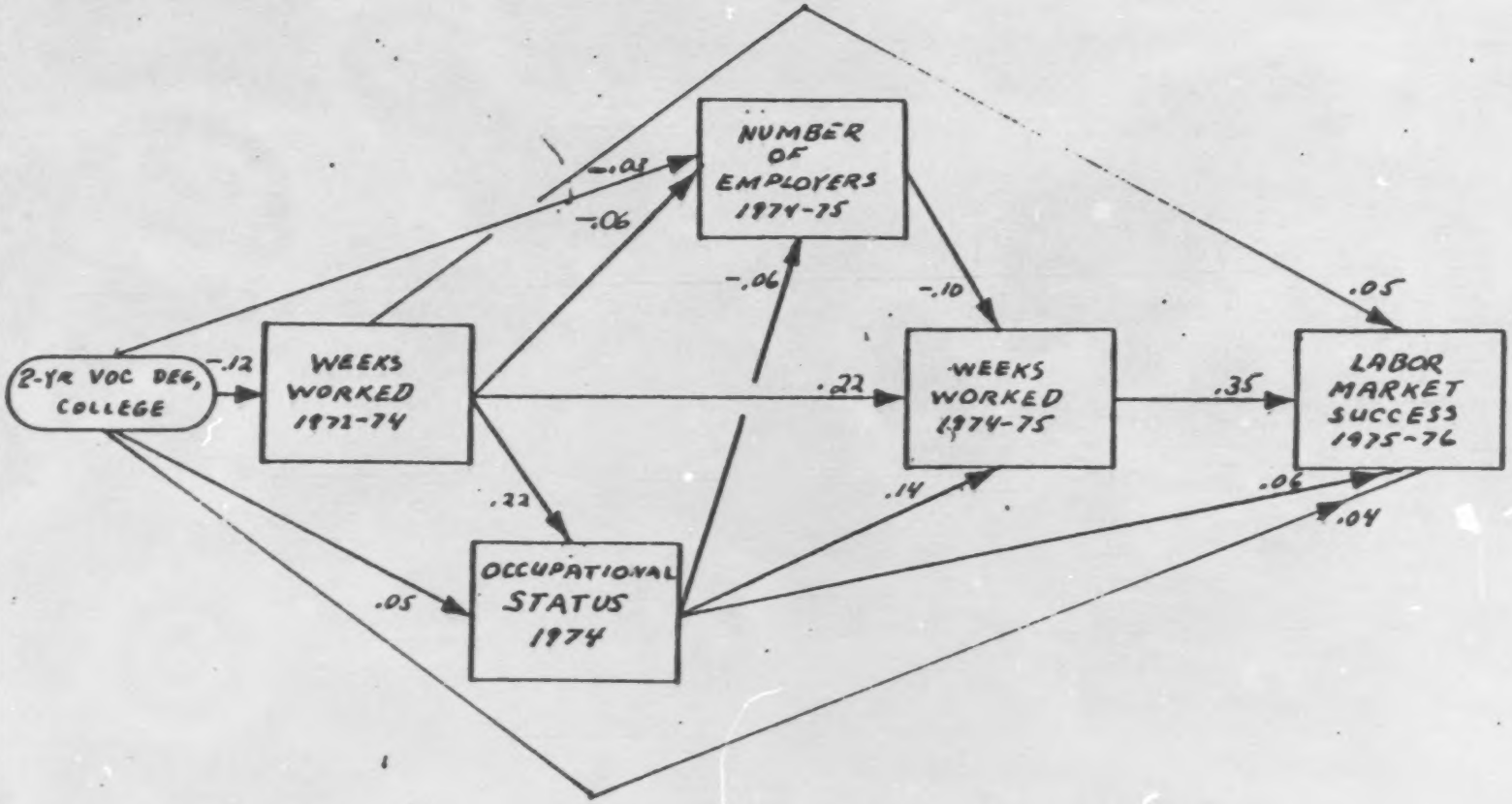

Fig. 1B: Flow of Influence to 1975-76 Labor Market Success, from College Vocational Degree

(See general note for this appendix.)

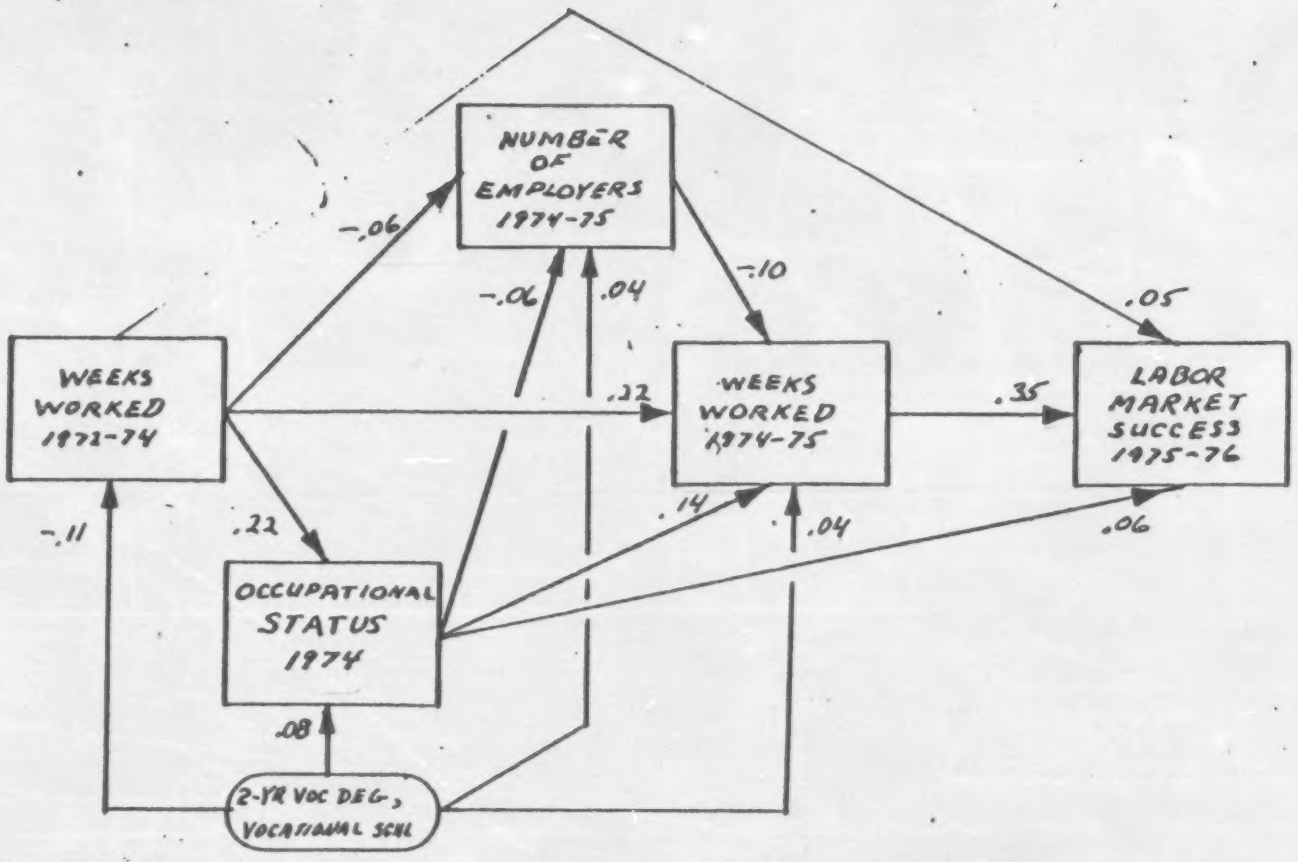

Fig. 1C: Flow of Influence to 1975-76 Labor Market Success, from Vocational School Degree

(See general note for this appendix.)

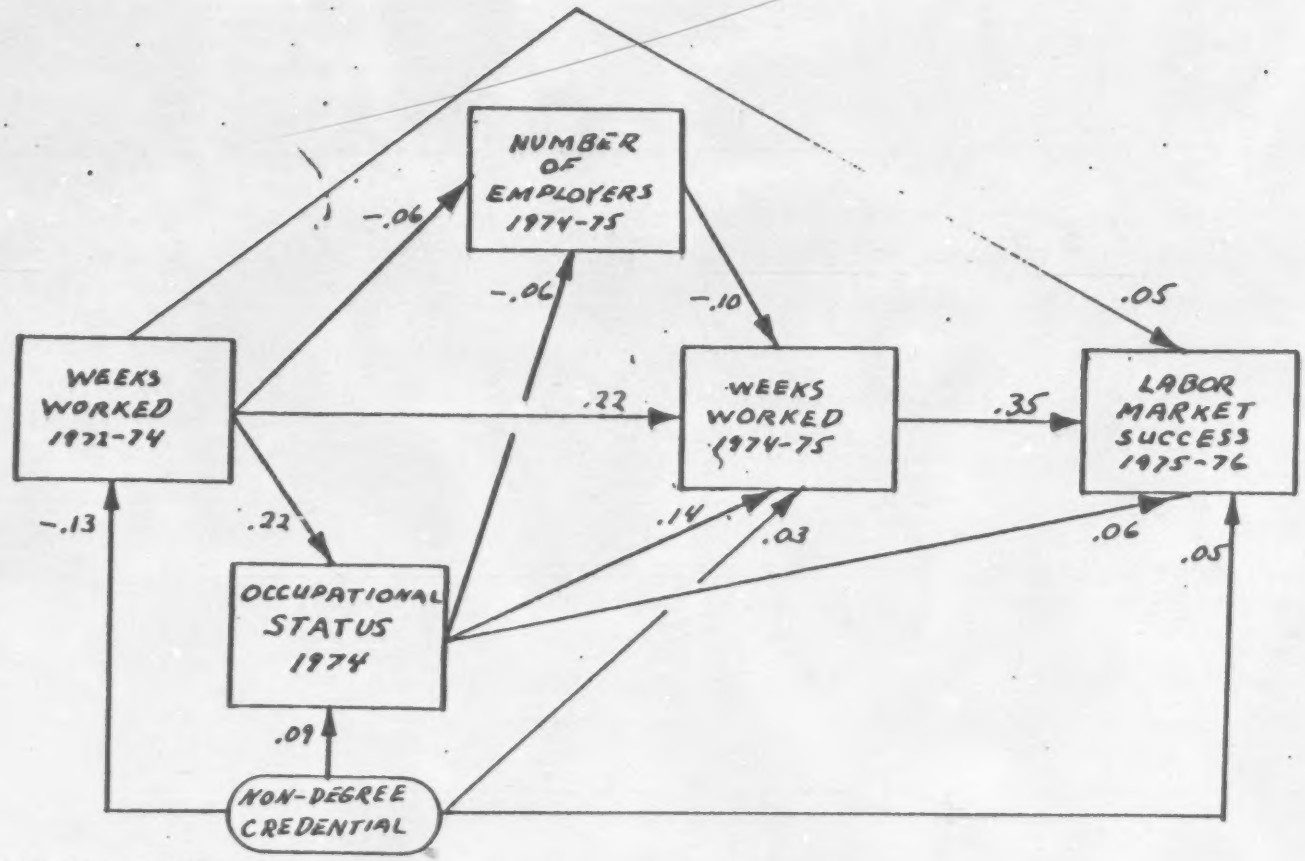

Fig. 1D: Flow of Influence to 1975-76 Labor Market Success, from Non-Degree Credentials (See general note for this appendix.)

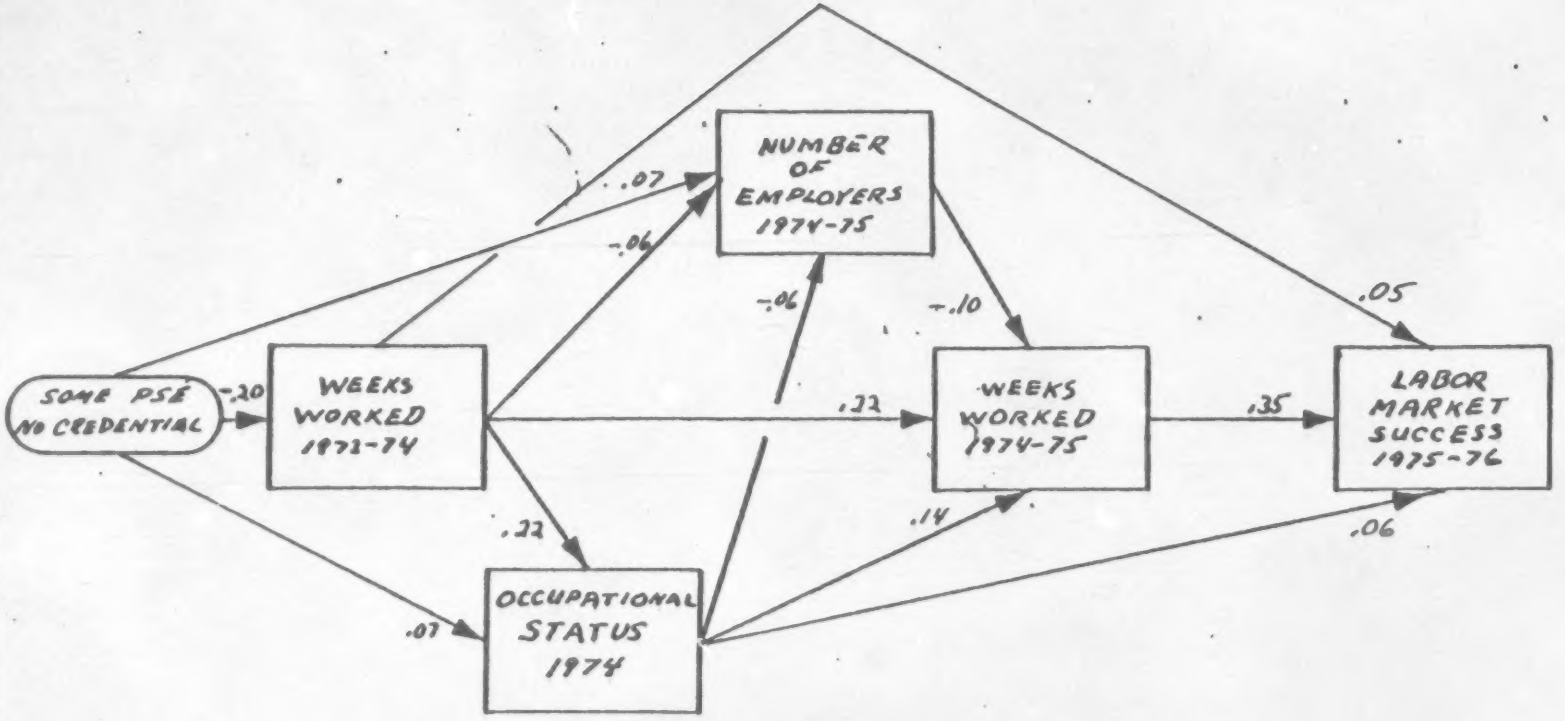

Fig. 1E: Flow of Influence to 1975-76 Labor Market Success, from PSE Drop-out

(See general note for this appendix.)

APPENDIX 2-4

Tables 9A - 9K:

Effects of PSE on 1976 Outcomes and Intervening Variates

Note: These tables present only standardized coefficients. Absolute (unstandardized) coefficients for PSE effects on outcomes are given in Tables 1-5. Absolute effects for intervening variates can be derived by use of standard deviations given in Table 19, Appendix 5-2.

Table 9A: Effect of PSE on Early Work Experience, Persons Employed in October 1976.

DEPENDENT VARIABLE: WKSWRK24

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	.1214							
MINORITY	-.0998						.024	23.54
HSGRADES	.0470							
HSACAD	-.0622							
HSVOC	.1101						.046	22.29
PSE VARIATES		-.1997	-.1511	-.1324	-.1375	-.1897	.132	21.28

Table 9B: Effect of PSE on 1974 Occupational Status, Persons Employed in October 1976.

DEPENDENT VARIABLE: GOCSTAT4

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	.0603							
MALE	NS							
MINORITY	-.1095						.017	19.70
HSGRADES	.1198							
HSACAD	.0432							
HSVOC	.0768						.037	19.51
PSE VARIATES		.0421	.0590	.0590	.0338	.0696	.047	19.42
WKSWRK24	.2041	.0829	.0898	.0860	.0619	.1083	.083	19.05

Table 9C: Effect of PSE on 1974 Hourly Earnings, Persons Employed in October 1976

DEPENDENT VARIABLE: CURRWGE4

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	.2591							
MINORITY	-.0394						.069	1.85
HSGRADES	NS							
HSACAD	.0434							
HSVOC	.0350						.072	1.85
PSE VARIATES		NS	NS	NS	NS	NS	.072	1.85
WKSWRK24	.1306	NS	NS	NS	NS	NS	.087	1.84
GOCSTAT4	.2428	NS	NS	NS	NS	NS	.141	1.78

Table 9D: Effect of PSE on Number of Employers, 1974-75; Persons Employed in October, 1976.

DEPENDENT VARIABLE: NMEMP45

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	NS							
MINORITY	NS						NS	.695
HSGRADES	NS							
HSACAD	NS							
HSVOC	-.0415						.005	.694
PSE VARIATES		.0954	.0386	.0555	NS	NS	.015	.690
WKSWRK24	-.1032	.0748	NS	.0418	-.0378	NS	.025	.687
GOCSTAT4	-.0835	.0817	NS	.0490	-.0327	NS	.031	.685
CURRWGE4	-.0488	.0819	NS	.0482	-.0327	NS	.033	.684

Table 58: Effect of PSE on Recent Work Experience, Persons Employed in October 1976.

DEPENDENT VARIABLE: WKSWRK45

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	NS							
MINORITY	-.0711						.007	10.42
HSGRADES	.0632							
HSACAD	NS							
HSVOC	.0503						.013	10.39
PSE VARIATES		NS	NS	NS	NS	NS	.015	10.38
WKSWRK24	.2449	NS	.0470	.0496	.0309	.0545	.067	10.11
GOCSTAT4	.1327	NS	.0351	.0382	NS	.0402	.083	10.02
CURRWGE4	NS	NS	.0356	.0386	NS	.0403	.083	10.02
NMEMP45	-.1122	NS	.0389	.0440	NS	.0403	.095	9.95

Table 9F: Effect of PSE on 1975-76 Labor Market Success, Persons Employed in October 1976

DEPENDENT VARIABLE: LMSUC56

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	NS							
MINORITY	NS						NS	.131
HSGRADES	.0339							
HSACAD	NS							
HSVOC	.0406						.003	.131
PSE VARIATES		NS	NS	NS	NS	NS	.006	.131
WKSWRK24	.1196	NS	.0354	NS	.0440	.0352	.019	.130
GOCSTAT4	.1193	NS	NS	NS	.0366	NS	.032	.129
CURRWGE4	NS	NS	NS	NS	.0366	NS	.032	.129
NMEMP45	NS	NS	NS	NS	.0362	NS	.032	.129
WKSWRK45	.3704	NS	NS	NS	.0291	NS	.156	.121

Table 9G: Effect of PSE on 1976 Job Longevity,
Persons Employed in October 1976

DEPENDENT VARIABLE: JOBLONG6

Control Variates-All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	.0569							
MINORITY	NS						.004	18.66
HSGRADES	.0420							
HSACAD	NS							
HSVOC	.1146						.021	18.50
PSE VARIATES		-.1841	-.0902	-.0632	-.0689	-.0918	.058	18.16
R6POWRF1	NS							
R6SESF2	NS							
R6MNRLF3	-.0414							
R6SVCMF4	-.0497							
R6GRTHF5	-.0524							
R6DSTRF6	NS	-.1743	-.0863	-.0627	-.0651	-.0928	.067	18.08
CITIND76	NS	-.1718	-.0856	-.0638	-.0653	-.0927	.068	18.07
WKSWRK24	.2516	-.1213	-.0474	-.0310	-.0311	-.0447	.123	17.54
GOCSTAT4	.1182	-.1301	-.0576	-.0416	-.0384	-.0575	.135	17.41
CURRWGE4	.0700	-.1304	-.0560	-.0405	-.0387	-.0569	.140	17.37
NMEMP45	-.2189	-.1152	-.0509	-.0303	-.0463	-.0569	.185	16.90
WKSWRK45	.1496	-.1179	-.0569	-.0372	-.0488	-.0630	.206	16.69
LMSUC56	.1798	-.1136	-.0590	-.0376	-.0539	-.0645	.233	16.41
GOVRNMT6	NS	-.1136	-.0590	-.0376	-.0539	-.0646	.233	16.41
PTWRK6	NS	-.1133	-.0590	-.0376	-.0539	-.0646	.233	16.41
ORGSIZE6	.0482	-.1149	-.0573	-.0381	-.0531	-.0649	.235	16.39

Table 9H: Effect of PSE on 1976 Occupational Status, Persons Employed in October 1976

DEPENDENT VARIABLE: GOCSTAT6

Control Variates-All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	.0748							
MALE	NS							
MINORITY	-.0892						.015	17.94
HSGRADES	.0840							
HSACAD	.1127							
HSVOC	.0808						.037	17.75
PSE VARIATES		.0792	.0412	.0380	.0417	.0815	.048	17.65
R6POWRF1	NS							
R6SESF	NS							
R6MNRLF3	NS							
R6SVCMF4	NS							
R6GRTHF5	NS							
R6DSTRF6	.0400	.0780	.0412	.0401	.0416	.0804	.050	17.65
CITIND76	.1476	.0656	.0377	.0459	.0426	.0797	.070	17.46
WKSWRK24	.0918	.0840	.0516	.0578	.0551	.0972	.077	17.40
GOCSTAT4	.3836	.0554	NS	NS	.0314	.0556	.210	16.09
CURRWGE4	-.0409	.0556	NS	NS	.0315	.0552	.212	16.08
NMEMP45	-.0355	.0580	NS	NS	.0303	.0552	.213	16.07
WKSWRK45	.0635	.0569	NS	NS	.0292	.0526	.217	16.03
LMSUC56	.0580	.0583	NS	NS	.0276	.0521	.219	16.00
GOVRNMT6	.0591	.0575	NS	NS	.0278	.0499	.223	15.97
PTWRK6	-.0655	.0595	NS	NS	.0282	.0497	.227	15.93
ORGSIZE6	.0635	.0573	NS	NS	.0292	.0493	.231	15.89
JOBLONG6	NS	.0563	NS	NS	.0287	.0488	.231	15.89
THNGTIM6	-.0494	.0552	NS	NS	.0289	.0494	.233	15.87
IDEATIM6	.1825	.0540	NS	NS	NS	.0396	.264	15.55
PAPRTIM6	.2976	.0378	NS	NS	NS	.0356	.321	14.93
NMSUP6P4	.1118	.0377	NS	NS	NS	.0359	.333	14.81

Table 9I: Effect of PSE on 1976 Hourly Earnings, Persons Employed in October 1976

DEPENDENT VARIABLE: CURRWGE6

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	.0303							
MALE	.3885							
MINORITY	-.0605						.155	1.41
HSGRADES	.0310							
HSACAD	.0568							
HSVOC	NS						.159	1.41
PSE VARIATES		NS	NS	NS	NS	NS	.160	1.41
R6POWRF1	.0454							
R6SESF2	.1497							
R6MNRLF3	.0674							
R6SVCMF4	NS							
R6GRTHF5	NS							
R6DSTRF6	.0316	NS	NS	NS	NS	NS	.189	1.38
CITIND76	.1014	-.0300	NS	NS	NS	NS	.198	1.38
WKSWRK24	.0747	NS	NS	NS	NS	.0301	.203	1.37
GOCSTAT4	.1108	NS	NS	NS	NS	NS	.214	1.36
CURRWGE4	.3051	NS	NS	NS	NS	NS	.293	1.29
NMEMP45	NS	NS	NS	NS	NS	NS	.293	1.29
WKSWRK45	NS	NS	NS	NS	NS	NS	.293	1.29
LMSUC56	.0333	NS	NS	NS	NS	NS	.294	1.29
GOVRNMT6	NS	NS	NS	NS	NS	NS	.294	1.29
PTWRK6	.0272	NS	NS	NS	NS	NS	.295	1.29
ORGSIZE6	.1520	-.0293	NS	NS	NS	NS	.317	1.27
JOBLONG6	.0997	NS	NS	NS	NS	NS	.324	1.27
THNGTIM6	NS	NS	NS	NS	NS	NS	.325	1.27
IDEATIM6	.0393	NS	NS	NS	NS	NS	.326	1.26
PAPRTIM6	-.0992	NS	NS	NS	NS	NS	.332	1.26
NMSBORD6	NS	NS	NS	NS	NS	NS	.332	1.26
GOCSTAT6	.0686	NS	NS	NS	NS	NS	.335	1.26

Table 9J: Effect of PSE on 1976 Pay Satisfaction
Persons Employed in October 1976

DEPENDENT VARIABLE: PAYSAT6

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	NS							
MINORITY	-.0536						.003	1.14
HSGRADES	.0340							
HSACAD	NS							
HSVOC	.0540						.007	1.14
PSE VARIATES		NS	NS	NS	NS	NS	.008	1.14
R6POWRF1	NS							
R6SESF2	.0425							
R6MNRLF3	.0369							
R6SVCMF4	NS							
R6GRTHF5	.0423							
R6DSTRF6	-.0344	NS	NS	NS	NS	NS	.014	1.14
CITIND76	NS	NS	NS	NS	NS	NS	.014	1.14
WKSWRK24	.0974	NS	NS	NS	NS	.0323	.022	1.13
GOCSTAT4	.0704	NS	NS	NS	NS	NS	.027	1.13
CURRWGE4	.0893	NS	NS	NS	NS	NS	.033	1.13
NMEMP45	NS	NS	NS	NS	NS	NS	.034	1.12
WKSWRK45	NS	NS	NS	NS	NS	NS	.034	1.12
LMSUC56	NS	NS	NS	NS	NS	NS	.034	1.12
GOVRNMT6	.0391	NS	NS	NS	NS	NS	.035	1.12
PTWRK6	-.0616	NS	NS	NS	NS	NS	.039	1.12
ORGSIZE6	.1026	NS	NS	NS	NS	NS	.049	1.12
JOBLONG6	.0343	NS	NS	NS	NS	NS	.050	1.12
THNGTIM6	NS	NS	NS	NS	NS	NS	.050	1.12
IDEATIM6	NS	NS	NS	NS	NS	NS	.050	1.12
PAPRTIM6	-.0440	NS	NS	NS	NS	NS	.051	1.12
NMSBORD6	NS	NS	NS	NS	NS	NS	.051	1.12
GOCSTAT6	NS	NS	NS	NS	NS	NS	.052	1.12
CURRWGE6	.3482	NS	NS	NS	NS	NS	.132	1.07

Table 9K: Effect of PSE on 1976 Overall Job Satisfaction, Persons Employed in October 1976

DEPENDENT VARIABLE: JOBSAT6

Control Variable- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS						
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	STD ERR
SES	NS							
MALE	-.0544							
MINORITY	NS						.004	1.03
HSGRADES	NS							
HSACAD	NS							
HSVOC	.0612						.008	1.02
PSE VARIATES		NS	.0346	NS	NS	.0348	.011	1.02
R6POWRF1	NS							
R6SESF2	NS							
R6MNRLF3	.0375							
R6SVCMF4	NS							
R6GRTHF5	.0918							
R6DSTRF6	NS	NS	NS	NS	NS	.0373	.020	1.02
CITIND76	-.0388	NS	NS	NS	NS	.0375	.022	1.02
WKSWRK24	.0800	NS	.0432	.0351	NS	.0527	.027	1.02
GOCSTAT4	.0645	NS	.0376	NS	NS	.0457	.031	1.01
CURRWGE4	NS	NS	.0380	NS	NS	.0458	.031	1.01
NMEMP45	NS	NS	.0378	NS	NS	.0458	.031	1.01
WKSWRK45	NS	NS	.0369	NS	NS	.0450	.032	1.01
LMSUC56	NS	NS	.0367	NS	NS	.0448	.032	1.01
GOVRNMT6	NS	NS	.0361	NS	NS	.0442	.032	1.01
PTWRK6	NS	NS	.0361	NS	NS	.0442	.033	1.01
ORGSIZE6	-.0507	NS	.0343	NS	NS	.0445	.035	1.01
JOBLONG6	NS	NS	.0344	NS	NS	.0446	.035	1.01
THNGTIM6	NS	NS	.0346	NS	NS	.0443	.036	1.01
IDEATIM6	.2040	NS	NS	NS	NS	.0333	.075	0.99
PAPRTIM6	NS	NS	NS	NS	NS	.0328	.076	0.99
NMSBORD6	NS	NS	NS	NS	NS	.0329	.076	0.99
GOCSTAT6	.0602	NS	NS	NS	NS	NS	.078	0.99
CURRWGE6	.1004	NS	NS	NS	NS	NS	.085	0.99
PAYSAT	.4348	NS	NS	NS	NS	NS	.249	0.89

APPENDIX 2-5

Figures 2A - 2E:

Transmission Network for PSE Influence on 1976 Wage

Note: These figures are not complete path diagrams. Important factors, especially negative effects from foregone early work experience, have been omitted for simplification of the diagram.

Values shown in the diagrams are standardized regression (path) coefficients from relevant equations. Because data are of uncertain reliability, they should be construed as merely suggestive.

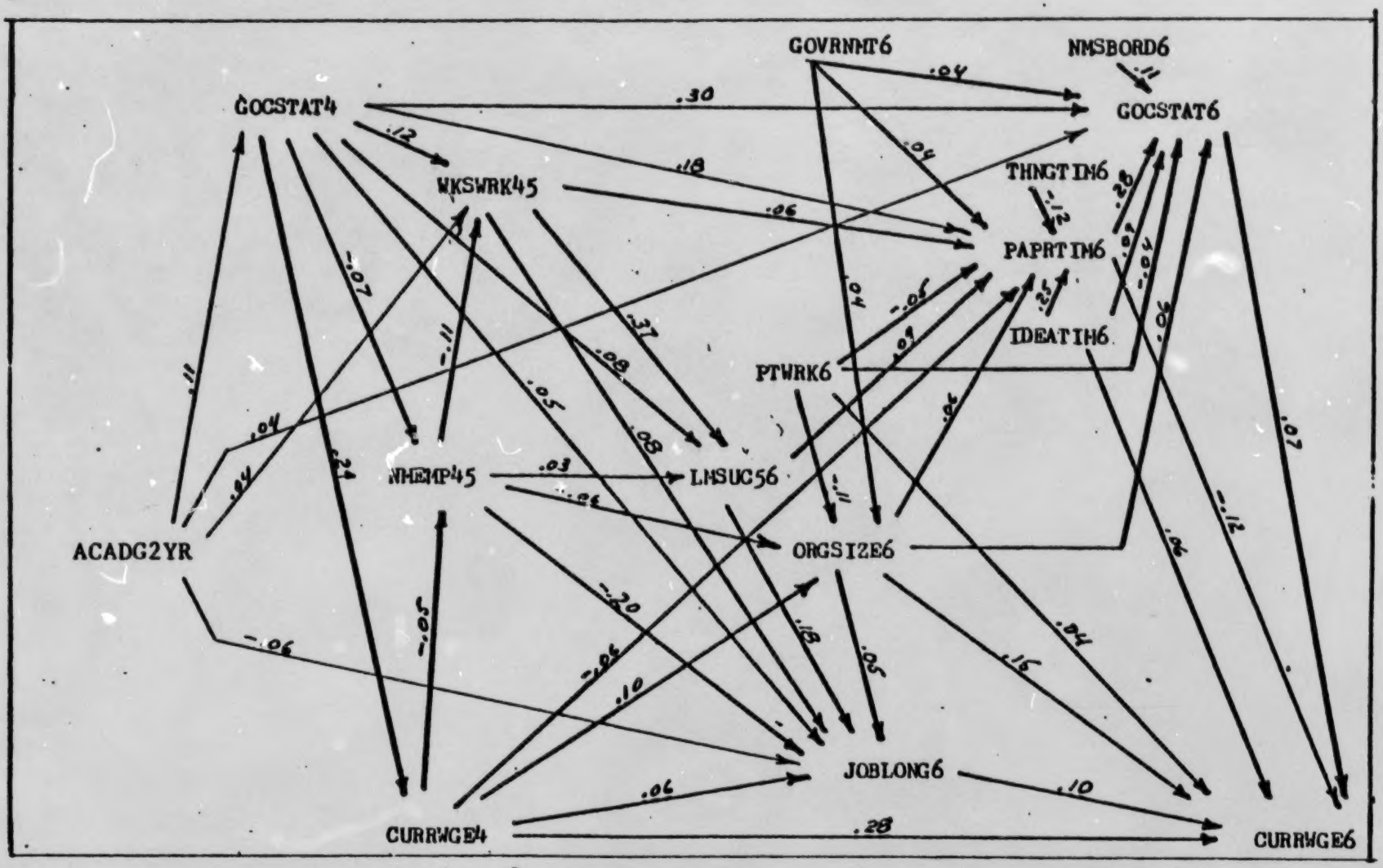

Fig. 2A: Flow of PSE Influence to Hourly Earnings in October 1976: ACADG2YR. System with background, location, and early work experience controlled.

(See general note for this appendix.)

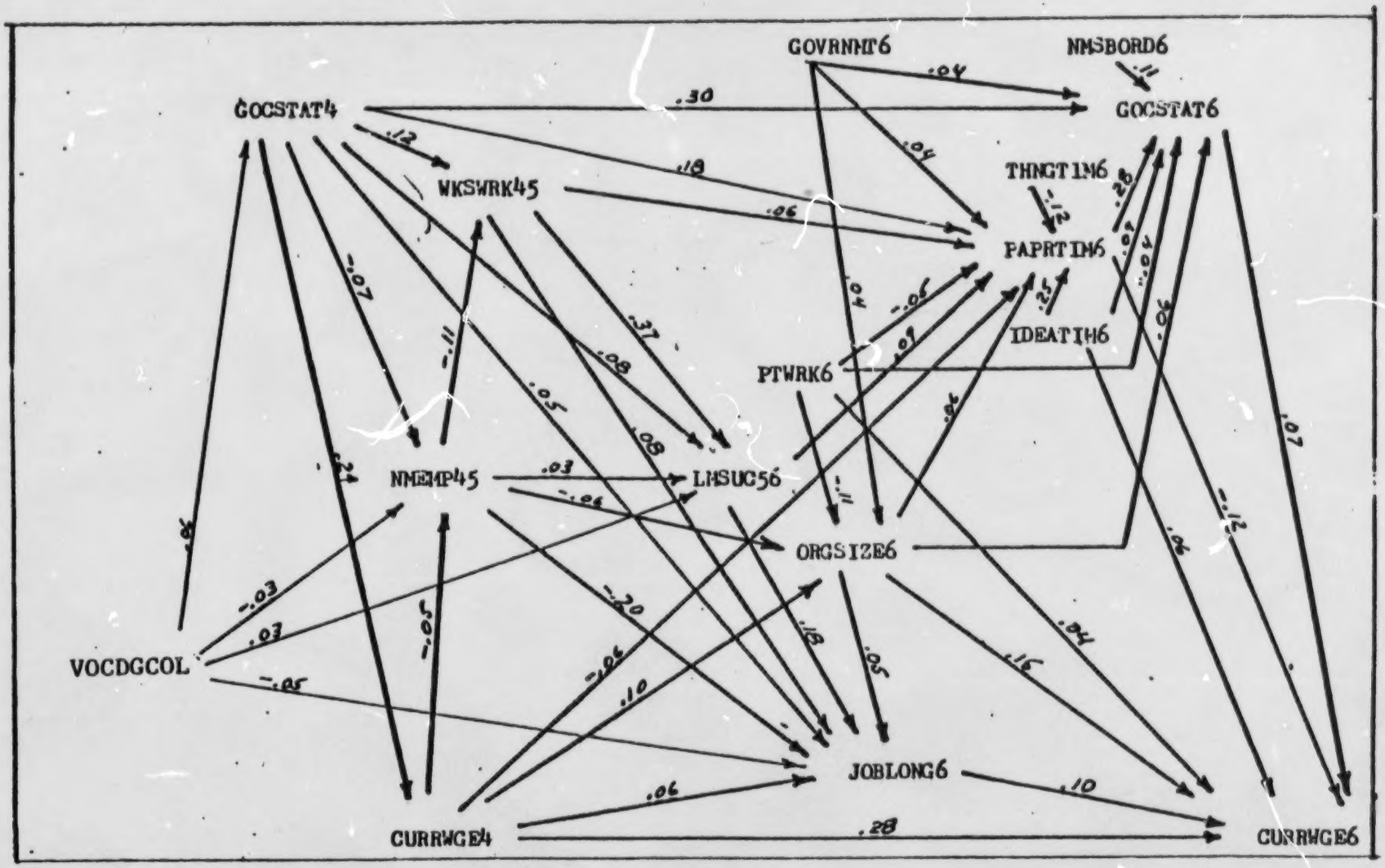

Fig. 2B: Flow of PSE Influence to Hourly Earnings in October 1976: VOCDGCOL. System with background, location, and early work experience controlled.

(See general note for this appendix.)

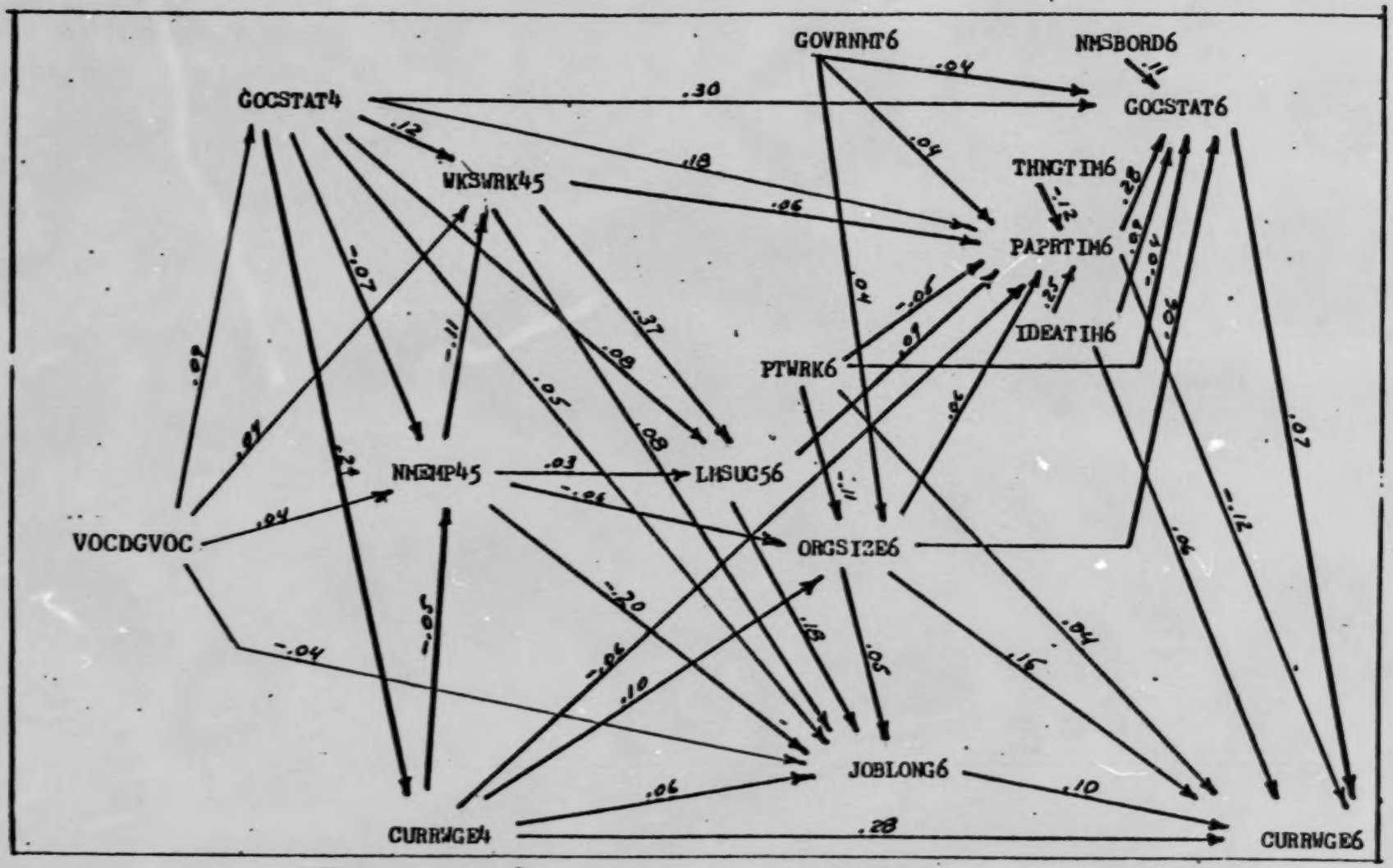

Fig. 2C: Flow of PSE Influence to Hourly Earnings in October 1976: VOCDGVOC. System with background, location, and early work experience controlled.

(See general note for this appendix.)

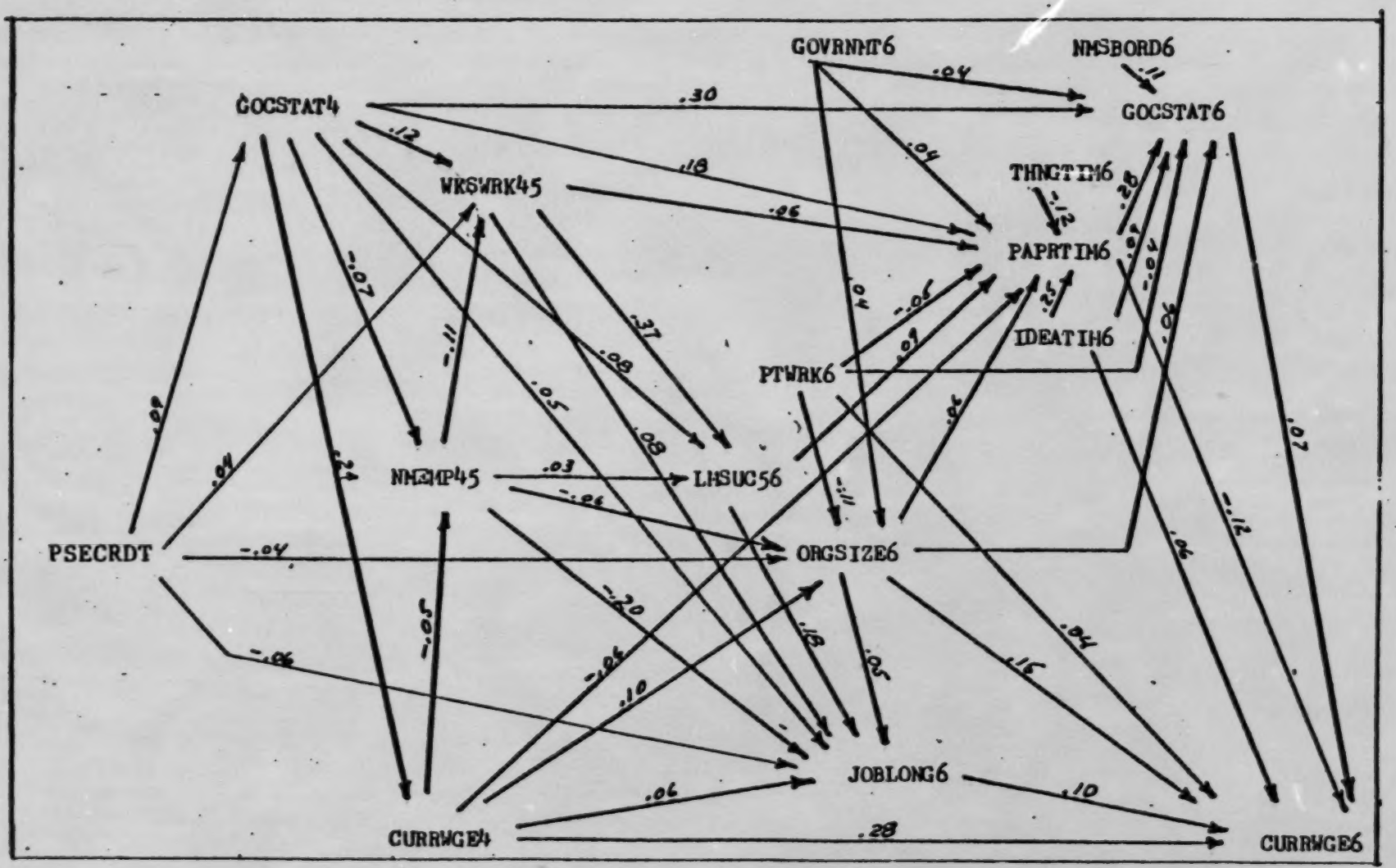

Fig. 2D: Flow of PSE Influence to Hourly Earnings in October 1976: PSECRDT. System with background, location, and early work experience controlled.

(See general note for this appendix.)

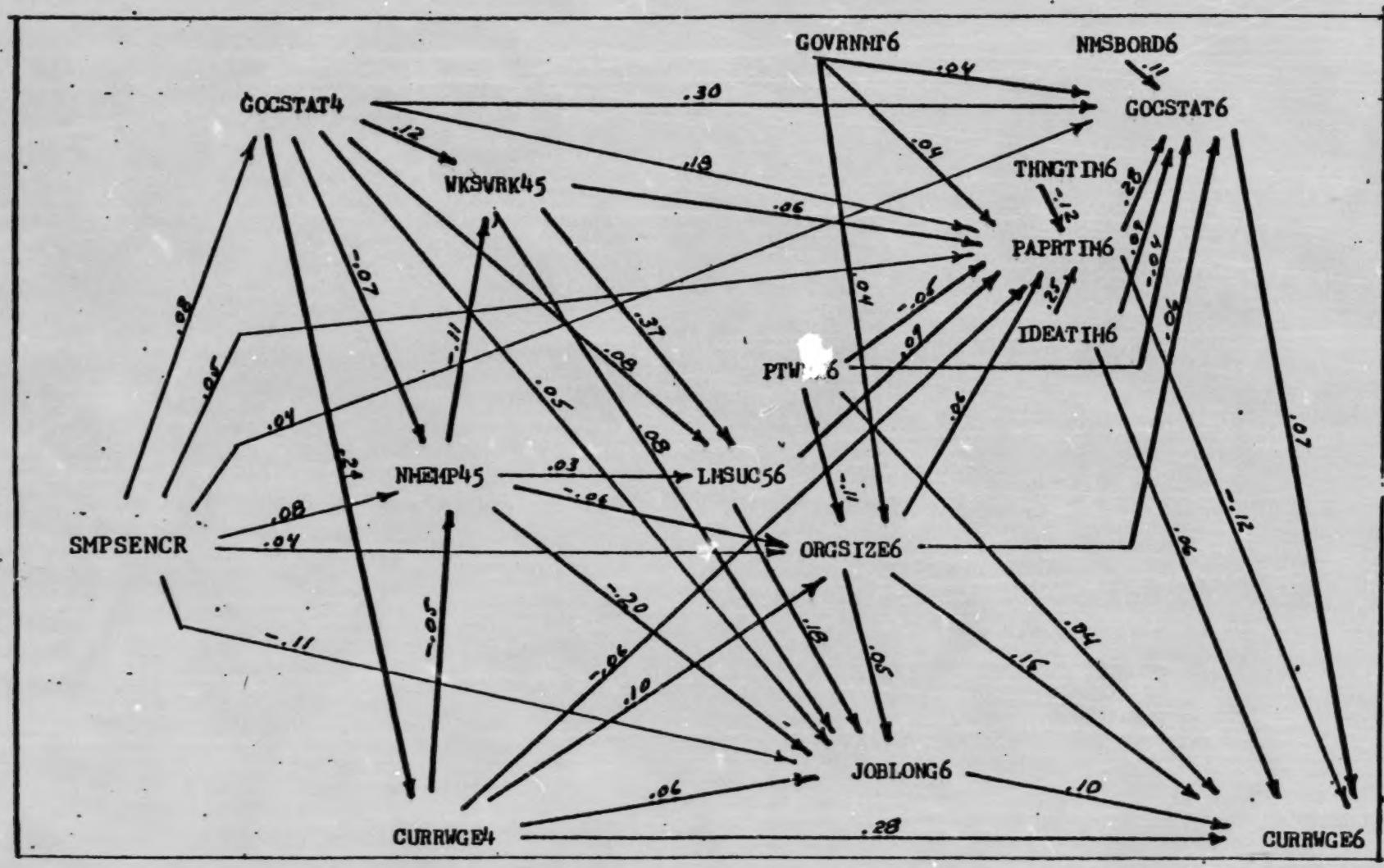

Fig. 2E: Flow of PSE Influence to Hourly Earnings in October 1976: SMPSENCR. System with background, location, and early work experience controlled.

(See general note for this appendix.)

APPENDIX 2-6

Table 10:

Effect of PSE on Employment Outcomes: Stepped Analyses for Subsamples

Table 10A: Women
Table 10B: Minority Group Members

See Notes at end of Table 10.

Table 10A: Effect of PSE on Employment Outcomes of Women, by Outcome - Stepped Analyses

Outcome: LMSUC56

In PSE Category:		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:		29.84	13.56	1.51	1.21	3.82
Weighted N:		1004.1	456.3	50.8	40.7	128.5
Unweighted N:		693	315	35	28	89

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	17.4%	NS						
MALE	0.0%	-						
SES	-.198	.06						
HSGRADES	4.69	.05						
HSACAD	22.3%	-.05						
HSVOC	42.5%	NS	NS	.05	NS	NS	NS	.013
WKSWRK24	81.6	.09	NS	.07	NS	.05	NS	.020
GOCSTAT4	42.5	.09	NS	.06	NS	.04	NS	.028
CURRWGE4	2.75	NS	NS	.06	NS	.04	NS	.028
NMEMP45	1.32	NS	NS	.06	NS	.04	NS	.028
WKSWRK45	46.6	.32	NS	.04	NS	NS	NS	.121

Table 10A (Cont'd)

Outcome: CURRWGE6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	28.96	14.67	1.39	1.38	3.99
Weighted N:	805.4	408.0	38.7	38.4	111.0
Unweighted N:	552	280	26	26	76

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Addes Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	16.3%	NS						
MALE	0.0	-						
SES	-.186	.15						
HSGRADES	4.74	.06						
HSACAD	22.1%	NS						
HSVOC	47.8%	.08	NS	NS	NS	NS	.09	.048
R6POWRF1	.904	.09						
R6SESF2	.079	.11						
R6MNRLF3	-.104	NS						
R6SVCMF4	-.143	NS						
R6GRTHF5	-.314	NS						
R6DSTRF6	.268	.09	NS	.05	.04	NS	.07	.087
CITIND76	4.06	.19	NS	NS	.05	NS	.07	.121
WKSWRK24	82.4	.11	NS	.06	.06	NS	.10	.131
GOCSTAT4	43.4	.16	NS	.05	.05	NS	.08	.155
CURRWGE4	2.79	.30	NS	.05	.05	NS	.03	.228
NMEMP45	1.29	NS	NS	.05	.05	NS	.08	.229
WKSWRK45	47.3	NS	NS	.05	.05	NS	.08	.229

Table 10A (Cont'd)

Outcome: CURRWGE6

Stepped Equations: Control Variates All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	STANDARDIZED REGRESSION COEFFICIENTS: SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.960	.06	NS	.05	.05	NS	.08	.233
GOVRNMT6	12.7%	.09	NS	.04	.05	NS	.07	.240
PTWRK6	8.5%	NS	NS	.04	.05	NS	.07	.240
ORGSIZE6	4.34	.15	NS	.05	.05	NS	.07	.260
JOBLONG6	26.2	.07	NS	.05	.05	NS	.07	.264
THNGTIM6	30.3	NS	NS	.05	.05	NS	.07	.265
IDEATIM6	28.3	NS	NS	.05	.05	NS	.07	.265
PAPRTIM6	32.6	-.07	NS	.06	.05	NS	.07	.269
NMSBORD6	2.0	NS	NS	.06	.05	NS	.07	.269
GOCSTAT6	49.0	.09	NS	.06	.05	NS	.07	.274

Table 10A (Cont'd)

Outcome: GOCSTAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	28.96	14.67	1.39	1.38	3.99
Weighted N:	805.4	408.0	38.7	38.4	111.0
Unweighted N:	552	280	26	26	76

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	16.3%	-.08						
MALE	0.0%	-						
SES	-.186	.13						
HSGRADES	4.74	.12						
HSACAD	22.1%	.10						
HSVOC	42.8%	.13	.07	.04	NS	.05	.07	.088
R6POWRF1	.904	NS						
R6SESF2	.079	NS						
R6MNRLF3	-.104	NS						
R6SVCMF4	-.143	NS						
R6GRTHF5	-.314	NS						
R6DSTRF6	.268	.05	.07	.04	NS	.06	.07	.092
CITIND76	4.06	.18	.06	NS	NS	.06	.07	.121
WKSWRK24	82.4	.08	.07	.05	NS	.07	.09	.126
GOCSTAT4	43.4	.42	.05	NS	NS	.04	NS	.284
CURRWGE4	2.79	NS	.05	NS	NS	.04	NS	.285
NMEMP45	1.29	NS	.05	NS	NS	.04	NS	.286
WKSWRK45	47.3	.05	.05	NS	NS	.04	NS	.288

Table 10A (Cont'd)

Outcome: GOCSTAT6

Stepped Equations		STANDARDIZED REGRESSION COEFFICIENTS						
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.960	.05	.05	NS	NS	.04	NS	.291
GOVRNMT6	12.7%	.06	.05	NS	NS	.04	NS	.294
PTWRK6	8.5%	-.09	.05	NS	NS	.04	NS	.301
ORGSIZE6	4.34	.07	.05	NS	NS	.04	NS	.306
JOBLONG6	26.2	NS	.05	NS	NS	.04	NS	.306
THNGTIM6	30.3	-.05	.05	NS	NS	.04	NS	.308
IDEATIM6	28.3	.18	.05	NS	NS	NS	NS	.338
PAPRTIM6	32.6	.28	NS	NS	NS	NS	NS	.394
NMSBORD6	2.0	.11	NS	NS	NS	NS	NS	.406

Table 10A (Cont'd)

Outcome: PAYSAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	28.96	14.67	1.39	1.38	3.99
Weighted N:	805.4	408.0	38.7	38.4	111.0
Unweighted N:	552	280	26	26	76

Stepped Equations — STANDARDIZED REGRESSION COEFFICIENTS

Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	16.3%	NS						
MALE	0.0%	-						
SES	-.186	NS						
HSGRADES	4.74	NS						
HSACAD	22.1%	NS						
HSVOC	42.8%	.08	NS	NS	NS	-.06	NS	.019
R6POWRF1	.904	NS						
R6SESF2	.079	NS						
R6MNRLF3	-.104	NS						
R6SVCMF4	-.143	NS						
R6GRTHF5	-.314	.06						
R6DSTRF6	.268	NS	NS	NS	NS	-.07	NS	.025
CITIND76	4.06	NS	NS	NS	NS	-.07	NS	.025
WKSWRK24	82.4	.08	NS	NS	NS	-.05	NS	.030
GOCSTAT4	43.4	.05	NS	NS	NS	-.06	NS	.033
CURRWGE4	2.79	.08	NS	NS	NS	-.06	NS	.038
NMEMP45	1.29	NS	NS	NS	NS	-.06	NS	.038
WKSWRK45	47.3	NS	NS	NS	NS	-.06	NS	.038
LMSUC56	.960	NS	NS	NS	NS	-.06	NS	.039

Table 10A (Cont'd)

Outcome: PAYSAT6

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
GOVRNMT6	12.7%	.07	NS	NS	NS	-.06	NS	.044
PTWRK6	8.5%	NS	NS	NS	NS	-.06	NS	.045
ORGSIZE6	4.34	.08	NS	NS	NS	-.05	NS	.052
JOBLONG6	26.2	.05	NS	NS	NS	-.05	NS	.054
THNGTIM6	30.3	NS	NS	NS	NS	-.05	NS	.054
IDEATIM6	28.3	-.06	NS	NS	NS	-.05	NS	.057
PAPRTIM6	32.6	NS	NS	NS	NS	-.05	NS	.057
NMSBORD6	2.0	-.04	NS	NS	NS	-.05	NS	.059
GOCSTAT6	49.0	.06	NS	NS	NS	-.05	NS	.061
CURRWGE6	3.62	.30	NS	NS	NS	-.06	NS	.125

Table 10B: Effects of PSE on Employment Outcomes of Minority Group Members, by Outcome - Stepped Analyses

Outcome: LMSUC56

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	28.98	12.25	0.94	0.59	0.27
Weighted N:	349.8	147.9	11.3	7.1	3.3
Unweighted N:	258	109	8	5	2

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equations R^2
MINORITY	100	-						
MALE	51.6	NS						
SES	-.477	NS						
HSGRADES	3.98	NS						
HSACAD	14.8%	NS						
HSVOC	43.2%	NS	NS	NS	NS	NS	NS	NS
WKSWRK24	79.3	.17	NS	NS	NS	NS	NS	.032
GOCSTAT4	37.3	.18	NS	NS	NS	NS	NS	.062
CURRWGE4	3.11	NS	NS	NS	NS	NS	NS	.062
NMEMP45	1.29	NS	NS	NS	NS	NS	NS	.065
WKSWRK45	44.3	.32	NS	NS	NS	NS	NS	.150

Table 10A (Cont'd)

Outcome: JOBSAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	28.96	14.67	1.39	1.38	3.99
Weighted N:	805.4	408.0	38.7	38.4	111.0
Unweighted N:	552	280	26	26	76

Stepped Equations — STANDARDIZED REGRESSION COEFFICIENTS

Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	16.3%	NS						
MALE	0.0	-						
SES	-.186	.05						
HSGRADES	4.74	NS						
HSACAD	22.1%	NS						
HSVOC	42.8%	NS	NS	NS	NS	NS	.06	.014
R6POWRF1	.904	NS						
R6SESF2	.079	NS						
R6MNRLF3	-.104	NS						
R6SVCMF4	-.143	-.06						
R6CRTHF5	-.314	.15						
R6DSTRF6	.268	NS	NS	NS	NS	NS	.06	.031
CITIND76	4.06	-.06	NS	NS	NS	NS	.06	.034
WKSWRK24	82.4	.06	NS	.05	NS	NS	.07	.036
OCCSTAT4	43.4	.05	NS	.05	NS	NS	.07	.039
CURRWGE4	2.79	.05	NS	.05	NS	NS	.07	.041
NMEMP45	1.29	NS	NS	.05	NS	NS	.06	.041
WKSWRK45	47.3	NS	NS	.05	NS	NS	.07	.041

Table 10A (Cont'd)

Outcome: JOBSAT6

Stepped Equations Control Variates - All Preceding Plus	Control Variate Mean or Percentage	STANDARDIZED REGRESSION COEFFICIENTS Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.960	NS	NS	.05	NS	NS	.07	.041
GOVRNMT6	12.7%	NS	NS	NS	NS	NS	.06	.041
PTWRK6	8.5%	NS	NS	NS	NS	NS	.06	.042
ORGSIZE6	4.34	NS	NS	NS	NS	NS	.06	.043
JOBLONG6	26.2	NS	NS	NS	NS	NS	.07	.044
THNGTIM6	30.3	NS	NS	NS	NS	NS	.07	.045
IDEATIM6	28.3	.16	NS	NS	NS	NS	.05	.069
PAPRTIM6	32.6	.07	NS	NS	NS	NS	.05	.073
NMSBORD6	2.0	NS	NS	NS	NS	NS	.05	.073
GOCSTAT6	49.0	NS	NS	NS	NS	NS	.05	.075
CURRWGE6	3.62	.11	NS	NS	NS	NS	.05	.084
PAYSAT6	.716	.46	NS	NS	NS	NS	.05	.268
JOBSAT6	.955	-						

Table 10B (Cont'd)

Outcome: GOCSTAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	29.96	13.25	0.93	0.77	0.18
Weighted N:	278.3	123.1	8.6	7.2	1.7
Unweighted N:	203	90	6	5	1

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equations R^2
MINORITY	100	-						
MALE	51.3%	.09						
SES	-.456	.08						
HSGRADES	3.99	NS						
HSACAD	13.8%	NS						
HSVOC	44.4%	NS	.12	.14	NS	NS	NS	.048
R6POWRF1	1.070	NS						
R6SESF2	-.176	.17						
R6MNRLF3	-.066	NS						
R6SVCMF4	.114	NS						
R6GRTHF5	.059	NS						
R6DSTRF6	.198	NS	.10	.14	NS	NS	NS	.074
CITIND76	4.33	.22	NS	.12	NS	.07	NS	.119
WKSWRK24	80.2	NS	.08	.13	NS	.07	NS	.120
GOCSTAT4	37.9	.36	NS	NS	NS	NS	NS	.236
CURRWGE4	3.12	NS	NS	NS	NS	NS	NS	.238
NMEMP45	1.28	NS	NS	NS	NS	NS	NS	.238
WKSWRK45	45.3	.08	NS	NS	NS	NS	NS	.243

Table 10B (Cont'd)

Outcome: GOCSTAT6

Stepped Equations		STANDARDIZED REGRESSION COEFFICIENTS						
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.957	NS	NS	NS	NS	NS	NS	.245
GOVRNMT6	14.1%	.10	NS	NS	NS	NS	NS	.254
PTWRK6	4.6%	NS	NS	NS	NS	NS	NS	.255
ORGSIZE6	4.55	NS	NS	NS	NS	NS	NS	.257
JOBLONG6	27.7	NS	NS	NS	NS	NS	NS	.257
THNGTIM6	32.5	NS	NS	NS	NS	NS	NS	.257
IDEATIM6	27.9	.15	NS	NS	NS	NS	NS	.277
PAPRTIM6	27.1	.31	NS	NS	NS	NS	NS	.342
NMSBORD6	2.6	.12	NS	NS	NS	NS	NS	.354

Table 10B (Cont'd)

Outcome: CURRWGE6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	29.96	13.25	0.93	0.77	0.18
Weighted N:	278.3	123.1	8.6	7.2	1.7
Unweighted N:	203	90	6	5	1

Stepped Equations			STANDARDIZED REGRESS COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	100	-						
MALE	51.3%	.35						
SES	-.456	NS						
HSGRADES	3.99	NS						
HSACAD	13.8%	.08						
HSVOC	44.4%	NS	NS	NS	NS	NS	NS	.144
R6POWRF1	1.070	NS						
R6SESF2	-.176	.27						
R6MNRLF3	-.066	NS						
R6SVCMF4	.114	NS						
R6GRTHF5	.059	NS						
R6DSTRF6	.198	NS	NS	NS	NS	NS	NS	.211
CITIND76	4.33	.08	NS	NS	NS	NS	NS	.217
WKSWRK24	80.2	.11	NS	NS	NS	.07	NS	.227
GOCSTAT4	37.9	.17	NS	NS	NS	NS	NS	.253
CURRWGE4	3.12	.27	NS	NS	NS	.07	NS	.310
NMEMP45	1.28	NS	NS	NS	NS	.07	NS	.314
WKSWRK45	45.3	NS	NS	NS	NS	.07	NS	.314

Table 10B (Cont'd)

Outcome: CURRWGE6

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	PSECRDT	VOCDGVOC	ACADG2YR	Equation R^2
LMSUC56	.957	-.08	NS	NS	NS	.07	NS	.320
GOVRNMT6	14.1%	NS	NS	NS	NS	.07	NS	.322
PTWRK6	4.6%	NS	NS	NS	NS	.07	NS	.325
ORGSIZE6	4.55	.15	NS	NS	NS	.06	NS	.345
JOBLONG6	27.7	.08	NS	NS	NS	.07	NS	.350
THNGTIM6	32.5	NS	NS	NS	NS	.07	NS	.351
IDEATIM6	27.9	NS	NS	NS	NS	.07	NS	.353
PAPRTIM6	27.1	NS	NS	NS	NS	.07	NS	.354
NMSBORD6	2.6	NS	NS	NS	NS	.07	NS	.356
GOCSTAT6	44.9	.11	NS	NS	NS	.06	NS	.364

Table 10B (Cont'd)

Outcome: PAYSAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	29.96	13.25	0.93	0.77	0.18
Weighted N:	278.3	123.1	8.6	7.2	1.7
Unweighted N:	203	90	6	5	1

Stepped Equations			STANDARDIZED REGRESSION COEFFICIENTS					
Control Variate - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	100	-						
MALE	51.3%	NS						
SBS	-.456	NS						
HSGRADES	3.99	NS						
HSACAD	13.8%	NS						
HSVOC	44.4%	NS	NS	NS	NS	NS	NS	NS
R6POWRF1	1.070	NS						
R6SESF2	-.176	.10						
R6MNRLF3	-.066	NS						
R6SVCMF4	.114	NS						
R6GRTHF5	.059	NS						
R6DSTRF6	.198	NS	NS	NS	NS	NS	NS	.032
CITIND76	4.33	NS	NS	NS	NS	NS	NS	.033
WKSWRK24	80.2	.08	NS	NS	NS	NS	NS	.039
GOCSTAT4	37.9	.10	NS	NS	NS	NS	NS	.047
CURRWGE4	3.12	NS	NS	NS	NS	NS	NS	.047
NMEMP45	1.28	-.11	NS	NS	NS	NS	NS	.057
WKSWRK45	45.3	NS	NS	NS	NS	NS	NS	.057

Table 10B (Cont'd)

Outcome: PAYSAT6

Stepped Equations: Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	STANDARDIZED REGRESSION COEFFICIENTS: SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.957	NS	NS	NS	NS	NS	NS	.059
GOVRNMT6	14.1%	NS	NS	NS	NS	NS	NS	.059
PTWRK6	4.6%	NS	NS	NS	NS	NS	NS	.059
ORGSIZE6	4.55	NS	NS	NS	NS	NS	NS	.064
JOBLONG6	27.7	NS	NS	NS	NS	NS	NS	.066
THINGTIM6	32.5	NS	NS	NS	NS	NS	NS	.067
IDEATIM6	27.9	NS	NS	NS	NS	NS	NS	.068
PAPRTIM6	27.1	-.12	NS	NS	NS	NS	NS	.078
NMSBORD6	2.6	NS	NS	NS	NS	NS	NS	.079
GOCSTAT6	44.9	NS	NS	NS	NS	NS	NS	.082
CURRWGE6	4.01	.33	NS	NS	NS	NS	NS	.152

Table 108 (Cont'd)

Outcome: JOBSAT6

In PSE Category:	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR
Percentage:	29.96	13.25	0.93	0.77	0.18
Weighted N:	278.3	123.1	8.6	7,2	1.7
Unweighted N:	203	90	6	5	1

Stepped Equations — STANDARDIZED REGRESSION COEFFICIENTS

Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
MINORITY	100	-						
MALE	51.3%	NS						
SES	-.456	NS						
HSGRADES	3.99	NS						
HSACAD	13.8%	NS						
HSVOC	44.4%	NS	NS	NS	NS	NS	NS	NS
R6POWRF1	1.070	NS						
R6SESF2	-.176	.11						
R6MNRLF3	-.066	NS						
R6SVCMF4	.114	NS						
R6GRTHF5	.059	.09						
R6DSTRF6	.198	NS	NS	NS	NS	NS	NS	.025
CITIND76	4.33	-.11	NS	NS	NS	NS	NS	.037
WKSWRK24	80.2	.09	NS	NS	NS	NS	NS	.045
GOCSTAT4	37.9	NS	NS	NS	NS	NS	NS	.049
CURRWGE4	3.12	NS	NS	NS	NS	NS	NS	.051
NMEMP45	1.28	NS	NS	NS	NS	NS	NS	.053
WKSWRK45	45.3	NS	NS	NS	NS	NS	NS	.054

Table 10B (Cont'd)

Outcome: JOBSAT6

Stepped Equations		STANDARDIZED REGRESSION COEFFICIENTS						
Control Variates - All Preceding Plus	Control Variate Mean or Percentage	Entry Coeff., Added Control	SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	Equation R^2
LMSUC56	.957	NS	NS	NS	NS	NS	NS	.054
GOVRNMT6	14.1%	NS	NS	NS	NS	NS	NS	.054
PTWRK6	4.6%	NS	NS	NS	NS	NS	NS	.055
ORGSIZE6	4.55	NS	NS	NS	NS	NS	NS	.056
JOBLONG6	27.7	NS	NS	NS	NS	NS	NS	.056
THNGTIM6	32.5	NS	NS	NS	NS	NS	NS	.057
IDEATIM6	27.9	.20	NS	NS	NS	NS	NS	.091
PAPRTIM6	27.1	NS	NS	NS	NS	NS	NS	.091
NMSBORD6	2.6	NS	NS	NS	NS	NS	NS	.093
GOCSTAT6	44.9	.09	NS	NS	NS	NS	NS	.099
CURRWGE6	4.01	NS	NS	NS	NS	NS	NS	.103
PAYSAT6	.590	.51	NS	NS	NS	NS	NS	.320
JOBSAT6	.830	-						

Table 10: Notes

Cell entries are standardized regression coefficients when specified variates are in the equation. Entry "NS" indicates a non-significant coefficient at nominal $p < .025$ (see Ch. 5). When "NS" occurs in the "equation R^2" column, it indicates a non-significant regression effect.

1975-76 labor market success (LMSUC56) analyses include all persons in the civilian labor force in October 1976. Remaining analyses exclude those unemployed in the reference month. Drop in sample size is partly due to increased exclusions for missing data, owing to additional variates in later equations.

Unweighted sample size (N) is estimated from weighted N and mean weight; approximation only.

APPENDIX 3-1

Tables 13 and 14:

Effects of PSE on 1974-76 Status Mobility and Wage Growth: Stepped Analyses

Table 13: Effect of PSE on Change in Occupational Status, 1974-76

Control Variates- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS					EQUATION	
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	S.E.E.
NENGLISH	NS							
MINORITY	NS							
MALE	NS							
SES	NS						NS	18.69
HSGRADES	NS							
HSACAD	NS							
HSVOC	NS							
HSCLASZ	NS						NS	18.68
PSE VARIATES		.05	NS	NS	NS	NS	.007	18.66
WKSWRK24	NS	.05	NS	NS	NS	NS	.008	18.65
GOCSTAT4	-.52	.07	NS	NS	.04	.05	.268	16.02
CURRWGE4	-	-	-	-	-	-	-	-
R4POPJ45	NS							
R4NAGJ45	NS							
R4NRZJ45	NS							
R4WGEJ45	NS							
R4IUNJ45	NS							
R4TUNJ45	NS							
R6POPJ56	NS							
R6NAGJ56	NS							
R6NRZJ56	NS							
R6WGEJ56	NS							
R6IUNJ56	NS							
R6TUNJ56	NS	.07	NS	NS	.03	.05	.270	16.03

Table 13 (Cont'd)

Control Variates-All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS					EQUATION	
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	S.E.E.
MOBDPOPG	NS							
MOBDNAGG	.07							
MOBDNRZG	-.05							
MOBDWGEG	NS							
MOBDMFGG	NS							
MOBDTRDG	NS							
MOBDGOVG	.26							
MOBDSVCG	NS							
MOBDTRUG	NS							
MOBDFING	NS							
MOBDCONG	NS							
MOBDMNPG	NS	.07	NS	NS	NS	.05	.275	15.99
MOVIND	.04							
CITDIFF	.04	.07	NS	NS	NS	.05	.278	15.96
WKSWRK46	.11	.07	NS	NS	NS	.05	.289	15.85
NUMEMP46	-.03	.07	NS	NS	NS	.05	.289	15.84
PUBPRV46	-.05							
PRVPUB46	.04							
FTTOPT46	-.05							
PTTOFT46	.03	.07	NS	NS	NS	.04	.298	15.76
LONGCH46	NS	.07	NS	NS	NS	.04	.298	15.75

Table 14: Effect of PSE on Change in Hourly Earnings, 1974-76

Control Variates-All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS					EQUATION	
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	S.E.E.
NENGLISH	NS							
MINORITY	NS							
MALE	NS							
SES	NS						NS	50.97
HSGRADES	NS							
HSACAD	NS							
HCVOC	NS							
HSCLASZ	NS						NS	50.95
PSE VARIATES		NS	.07	.07	NS	.05	.013	50.75
WKSWRK24	-.05	NS	.06	.06	NS	.04	.014	50.71
GOCSTAT4	NS	NS	.06	.06	NS	.04	.014	50.72
CURRWGE4	-.36	NS	.06	.06	NS	.04	.130	47.64
R4POPJ45	NS							
R4NAGJ45	NS							
R4NRZJ45	NS							
R4WGEJ45	NS							
R4IUNJ45	NS							
R4TUNJ45	NS							
R6POPJ56	NS							
R6NAGJ56	NS							
R6NRZJ56	NS							
R6WGEJ56	NS							
R6IUNJ56	NS							
R6TUNJ56	NS	NS	.05	.06	NS	.04	.136	47.56

Table 14 (Cont'd)

Control Variate- All Preceding Plus:	Entry Coefficient, Added Control Variate	STANDARDIZED REGRESSION COEFFICIENTS					EQUATION	
		SMPSENCR	PSECRDT	VOCDGVOC	VOCDGCOL	ACADG2YR	R^2	S.E.E.
MOBDPOPG	NS							
MOBDNAGG	NS							
MOBDNRZG	NS							
MOBDWGEG	NS							
MOBDMFGG	.30							
MOBDTRDG	NS							
MOBDGOVG	.29							
MOBDSVCG	.27							
MOBDTRUG	NS							
MOBDFING	NS							
MOBDCONG	.35							
MOBDMNPG	.07	NS	.06	.05	NS	.04	.145	47.37
MOVIND	NS							
CITDIFF	.06	NS	.06	.06	NS	.04	.149	47.27
WKSWRK46	.05	NS	.06	.05	NS	.04	.152	47.22
NUMEMP46	.05	NS	.06	.05	NS	.04	.154	47.16
PUBPRV46	-.03							
PRVPUB46	NS							
FTTOPT46	.06							
PTTOFT46	.06	NS	.06	.05	NS	.04	.162	46.96
LONGCH46	.05	NS	.06	.05	NS	.04	.163	49.93
GOCDIF46	.08	NS	.06	.05	NS	NS	.168	46.80

APPENDIX 3-2

Comment on an Apparent Inconsistency between the Static and Dynamic Analyses

In Chapters 1 and 3 I noted what appears to be an inconsistency between the dynamic and static analyses. The former shows important benefits, from PSE credentials, in the form of greater wage growth over the 1974-76 period. The latter, however, shows no difference in average wages, from PSE, in either 1974 or 1976. Greater growth, coupled with equal wages in one year, leads us to expect different wages in the other. Therein lies the anomaly.

The problem appears to be an artifact of differences between the samples employed for the analyses. A special analysis of data for the longitudinal (dynamic) sample shows that those with PSE credentials did have significantly lower 1974 wages, in contrast to the cross-sectional (static) sample. In both, 1976 wages were found to be equivalent for PSE credential holders and the comparison high school graduates.

On the whole, data regarding PSE dropouts are consistent for both samples. The dynamic-sample dropouts had 1974 wages and 1974-76 wage gains equivalent to those of comparison high school graduates. Their 1976 wages were, according to t-tests, about 12¢ an hour lower, but the significance level ($p = .04$) would not have been acceptable in the main analysis, where a nominal $p \leq .025$ was the criterion (see Ch. 5). Application of the same standard here would lead us to conclude that no inconsistency existed for dropouts, since the difference in 1976 wage is not statistically significant at $p \leq .025$.

Both the differing means and the distributions of

individual gain scores (Table 15) confirm the results of the wage equation discussed in Chapter 3. There was a credential benefit, in the form of greater wage growth, and this is consistent with relative wages of the PSE and high school graduate samples in 1974 and 1976.

The apparent inconsistency between the findings of the dynamic and static analyses is evidently an artifact of differences between the samples. The requirement of employment in both 1974 and 1976, and associated differences in the predictor variates included in the equations, produced samples with differing characteristics. Throughout the analyses, cases lost due to missing data on required variates are an important problem (see Ch. 5). The differences in opportunity for deletion owing to missing data--because the predictors differ--are the most likely source of variation in sample characteristics.

Finally, in neither analysis was a large proportion of outcome variance explained. This means that, in effect, the assessment of PSE-induced wage or wage-gain benefits is tenuous, and the estimates are therefore quite sensitive to differences of the sort noted. Probably the best "resolution" of the matter is (a) suspension of judgement pending better data and (b) emphasis on the cited uncertainty surrounding the receipt of estimated average benefits by individuals.

Table 15: Results of Special Investigation of Wages in the Dynamic Analysis Sample

	Total		High School Graduates		Postsecondary Dropouts				Postsecondary Credentials			
	Mean	SD	Mean	SD	Mean	SD	t	p(t)	Mean	SD	t	p(t)
1974-76 Wage Gain	31.8	51.0	28.6	44.9	31.2	45.8	1.59	.11	39.7	67.8	4.36	<.001
1974 Wage	$3.46	1.81	$3.51	1.37	$3.50	2.51	-0.20	.84	$3.30	1.34	-3.86	<.001
1976 Wage	$4.26	1.53	$4.31	1.57	$4.19	1.54	-2.07	.04	$4.25	1.44	-1.04	.30
Weighted N	4075		1913		1305				859			
Gain Distribution (Percentage of Sample):												
LE -19.2%	5.9		5.6		7.0				5.0			
-19.1 to 6.3%	15.3		16.3		15.5				12.9			
6.4 to 57.2%	40.8		44.2		36.6				39.8			
57.3 to 82.7%	30.1		28.0		32.2				31.5			
GE 82.8%	7.8		5.8		8.8				10.6			

Notes: Gain distribution categories correspond to: -1 SD or below, -.5 to -1 SD, $\pm$.5 SD, +.5 to 1 SD, and 1 SD or above, in terms of total mean and SD for Wage Gain.

APPENDIX 5-1

Tables 17 and 18:

Factor Analysis of State Descriptors

Table 17: Factor Scores for Individual States

STATE	FACTORS					
	1 Socioeconomic Power	2 Population SES	3 Mineral Resource Development	4 Structural Transition	5 Socioeconomic Growth	6 Urban - Industrial Distress
ALABAMA	- .129	-1.772	.399	- .193	- .367	.142
ALASKA	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
ARIZONA	- .225	.274	- .766	.393	2.212	.247
ARKANSAS	- .529	-1.764	- .064	- .589	.293	- .405
CALIFORNIA	3.499	.675	- .335	.930	.862	.121
COLORADO	- .255	.962	- .194	.640	1.450	- .326
CONNECTICUT	- .074	.799	-1.445	- .561	- .770	1.556
DELAWARE	- .693	.527	- .009	- .467	- .514	1.432
DIST. OF COLUMBIA	- .712	- .583	-1.090	4.825	-2.859	1.480
FLORIDA	.757	- .284	- .923	1.420	2.637	1.672
GEORGIA	.211	-1.294	- .492	- .089	.222	.154
HAWAII	- .574	1.563	- .701	1.111	.839	.636
IDAHO	- .911	.343	.279	- .334	1.354	- .682
ILLINOIS	2.123	.631	.187	- .328	-1.065	.004
INDIANA	.435	.096	- .198	-1.428	- .987	- .247
IOWA	- .319	.582	- .020	- .544	- .631	-1.234
KANSAS	- .425	.631	.281	.183	- .005	-1.028
KENTUCKY	- .211	-1.087	1.293	- .630	- .224	.627
LOUISIANA	.158	-1.079	1.470	.611	.254	- .449
MAINE	- .978	- .483	- .272	- .637	- .300	.549
MARYLAND	.212	.648	.344	- .216	.199	.786
MASSACHUSETTS	.296	.947	- .957	- .214	- .587	.871
MICHIGAN	1.046	.664	- .037	- .730	-1.164	.649
MINNESOTA	- .055	.823	- .388	- .591	- .017	- .359
MISSISSIPPI	- .544	-2.831	- .442	.101	.124	- .742
MISSOURI	.244	.184	.017	- .130	- .675	.330
MONTANA	- .877	.874	.106	.163	.595	- .703

Table 17 (Cont'd)

STATE	FACTORS					
	1 Socioeconomic Power	2 Population SES	3 Mineral Resource Development	4 Structural Transition	5 Socioeconomic Growth	6 Urban - Industrial Distress
NEBRASKA	- .493	.716	- .249	- .122	.268	-1.295
NEVADA	- .890	1.198	- .766	1.515	1.236	.211
NEW HAMPSHIRE	- .904	.068	- .959	-1.573	.548	.135
NEW JERSEY	.605	.758	- .246	- .711	- .820	1.643
NEW MEXICO	- .928	-1.045	.688	1.234	1.175	- .608
NEW YORK	2.550	.862	- .524	.816	-1.550	.892
NORTH CAROLINA	.237	-1.765	- .256	- .812	- .312	- .117
NORTH DAKOTA	-1.002	.473	1.479	.445	.186	-2.960
OHIO	1.530	.376	.109	-1.098	-1.442	.138
OKLAHOMA	- .397	.299	.253	- .024	.130	-1.049
OREGON	- .278	1.129	.003	- .385	.836	.380
PENNSYLVANIA	1.510	- .034	- .029	- .702	-1.298	.637
RHODE ISLAND	- .680	- .446	-1.176	- .034	-1.269	.616
SOUTH CAROLINA	- .293	-2.168	- .475	- .703	.088	- .059
SOUTH DAKOTA	-1.083	.108	- .764	1.201	- .518	-3.234
TENNESSEE	.127	-1.428	- .099	-1.084	- .249	- .143
TEXAS	2.135	- .690	.461	.457	1.315	- .685
UTAH	- .821	.794	.039	.182	.951	-1.264
VERMONT	-1.134	- .107	-1.105	- .610	.018	.258
VIRGINIA	.182	- .439	.321	.202	.405	.511
WASHINGTON	.149	1.332	.220	.089	- .044	.339
WEST VIRGINIA	- .724	- .763	2.957	- .720	- .867	1.331
WISCONSIN	.068	.503	- .428	- .752	- .411	- .076
WYOMING	- .940	.825	4.505	.523	.750	- .683

Table 18: Factor Structure Matrix and Factor Correlations, State Descriptors

VARIATES	FACTORS					
	1 Socioeconomic Power	2 Population SES	3 Mineral Resource Development	4 Structural Transition	5 Socioeconomic Growth	6 Urban - Industrial Distress
1976 Conditions						
18-44 Population	.98 **	.09	-.09	-.03	-.15	.23
Pct SMSA Residents	.58 *	.27	-.40 *	.22	-.19	.56 *
Pct Minority Population	.20	-.45 *	-.11	.66 **	-.10	.24
Pct Below Poverty	-.17	-.86 **	.19	.10	.17	-.23
Pct High School Graduates	-.06	.88 **	-.13	.17	.28	-.15
Pct College 1-3	-.12	.67 **	-.06	.33	.54 *	-.33
Employed Labor Force	.98 **	.10	-.10	-.05	-.16	.23
Non-Agricultural Employment	.98 **	.11	-.11	-.03	-.19	.24
Average Unemployment Rate	.27	.12	-.39	.16	-.08	.77 **
Per Capita Income	.37	.68 **	-.14	.34	-.26	.47 *
Average Production Wage	.31	.69 **	.18	.01	-.20	.14
Value Added by Manufacture	.96 **	.11	-.08	-.17	-.30	.21
Rel Agricultural Contrib. 1/	-.36	.13	.23	.20	.16	-.79 **
Non-Res.Electricity Used	.95 **	-.01	-.01	-.11	-.12	.18
Non-Res.Construction 2/	.88 **	.13	.07	-.002	-.07	.16
Pct Manufacturing Empl. 3/	.27	-.36	-.27	-.75 **	-.41 *	.29
Pct Trade Empl.	-.02	.44 *	.14	-.18	.57 *	-.53 *
Pct Government Empl.	-.36	.03	.20	.66 **	.25	-.37
Pct Services Empl.	-.01	.52 *	-.43 *	.63 **	.05	.11
Pct Transp-Util Empl.	.01	.31	.53 *	.31	.32	-.20
Pct Finance-Realty Empl.	.42 *	.42 *	-.46 *	.30	.08	.30
Pct Construction Empl.	-.35	-.20	.65 **	.10	.57 *	-.34
Pct Mining-Petrol Empl.	-.21	-.09	.85 **	.08	.19	-.12

Table 18 (Cont'd)

VARIATES	FACTOR 1 Socioeconomic Power	2 Population SES	3 Mineral Resource Development	4 Structural Transition	5 Socioeconomic Growth	6 Urban - Industrial Distress
1970-76 Change						
Pct Growth,18-44 Pop.	-.31	.08	.19	-.05	.91 **	-.22
Change,SMSA Proportion	-.22	-.41 *	-.04	.16	.26	-.59 *
Net Migration	.03	-.13	-.08	.22	.71 **	.09
Pct Growth,Employed LF	-.31	.08	.19	.06	.89 **	-.33
Pct Growth,Non-Ag Empl.	-.38	-.07	.37	.02	.86 **	-.50 *
Pct Growth,Per Cap Income	-.27	-.44 *	.67 **	-.04	.30	-.48 *
Pct Growth,Average Wage	-.06	.003	.51 *	-.43 *	.03	-.19
Pct Growth,Non-Res Electricity	-.09	-.03	-.17	-.07	.24	-.59 *
Change,Manufacturing Share 3/	-.34	.12	.14	.61 **	.30	-.62 **
Change,Trade Share	-.19	-.08	.16	-.60 **	.03	-.19
Change,Government Share	.43 *	.03	-.22	-.58 *	-.01	.56 *
Change,Services Share	.02	.02	-.60 **	.35	-.36	.26
Change,Transp-Util Share	.04	-.16	-.73 **	.18	-.34	.15
Change,Finance-Realty Share	-.02	.11	-.41 *	.05	.17	.31
Change,Construction Share	-.24	-.17	.70 **	.07	.08	-.52 *
Change,Mining-Petrol Share	.04	-.09	.66 **	-.08	-.22	.19

Factor Correlations:

Factor	1	-				
	2	.10	-			
	3	-.10	-.05	-		
	4	-.06	.08	-.07	-	
	5	-.16	.06	.08	.07	-
	6	.27	.04	-.21	-.01	-.22

Table 18 (Cont'd)

Notes: State data from standard Federal sources.

Asterisks indicate main factor correlates; '**' indicates primary elements, '*' indicates secondary elements.

Alaska omitted from analysis. Discussion in Ch. 5.

1. "Relative Agricultural Contribution" is the ratio of the value of agricultural products to value added by manufacturing. Where agriculture dominates the state economy the value is large, and conversely.

2. "Non-residential construction" is the dollar value of construction contracts let during the year. Some contracts will carry forward to future years. Not construction completed in year.

3. Industry distribution (structure) of the non-agricultural labor force. Not distribution of occupations, since occupational distribution may be diverse within industry (e.g., health service occupations will be found within manufacturing industry). "Change in share" variates indicate structural shifts among industries, between 1970 and 1976.

APPENDIX 5-2

Tables 19 and 20:

Means and Deviations of Variates

Table 19: Means and Deivations of Variates in Cross-Sectional Analyses

Variate[1]	Analysis: Labor Market Success Mean[2]	Labor Market Success SD[2]	All Others Mean[2]	All Others SD[2]
ACADG2YR	0.027	0.161	0.027	0.162
CITIND76			3.89	1.90
CURRWGE4	3.25	1.90	3.28	1.92
CURRWGE6			4.20	1.53
GOCSTAT4	42.10	20.25	42.99	19.87
GOCSTAT6			48.76	18.07
GOVRNMT6			0.097	0.296
HSACAD	0.223	0.416	0.219	0.414
HSGEN [3]	0.405	0.491	0.404	0.491
HSGRADES	4.25	1.32	4.31	1.31
HSNOPSE [3]	0.525	0.499	0.514	0.500
HSVOC	0.372	0.483	0.377	0.485
IDEATIM6			28.97	9.58
JOBLONG6			27.26	18.69
JOBSAT6			0.900	1.027
LMSUC56	0.939	0.172	0.958	0.131
MALE	0.509	0.500	0.494	0.500
MINORITY	0.176	0.381	0.169	0.375
NMEMP45	1.33	0.759	1.30	0.70
NMSBORD6			2.69	7.58
ORGSIZE6			4.26	2.69
PAPRTIM6			28.22	11.48
PAYSAT6			0.729	1.142
PSECRDT	0.118	0.323	0.128	0.334
PTWRK6			0.059	0.236
R6DSTRF6			0.257	0.702
R6GRTHF5			-0.270	1.032
R6MNRLF3			-0.079	0.618
R6POWRF1			0.895	1.209
R6SESF2			0.082	0.867
R6SVCMF4			-0.148	0.747
SES	-0.186	1.308	-0.177	1.429
SMPSENCR	0.302	0.459	0.302	0.459
THNGTIM6			32.57	10.15
VOCDGCOL	0.009	0.093	0.010	0.099
VOCDGVOC	0.019	0.137	0.019	0.137
WKSWRK24	84.25	23.40	85.13	22.81
WKSWRK45	46.28	11.24	47.02	10.45

Notes: Weighted N for Labor Market Success analysis is 6851; for all others, 5497.

[1] See Variate Glossary for brief definitions, Ch. 5 for discussion.

[2] For categorical (dummy) variates, mean x 100 equals percentage with cited trait. SD = $\sqrt{p.q}$, p = proportion with, q = proportion without trait.

[3] Reference category, not included in regression equations.

Table 20: Means and Deviations of Variates in Dynamic Analyses

Variate[1/]	Mean[2/]	SD
ACADG2YR	0.035	0.183
ADJWAGE4	3.92	2.05
CITDIFF	-0.017	1.061
CURRWGE4	3.46	1.81
CWGECH46	31.77	50.99
FTTOPT46	0.038	0.191
GOCDIF46	3.85	18.69
GOCSTAT4	45.70	17.55
HSACAD	0.250	0.433
HSCLASZ	344.68	242.76
HSGEN [3/]	0.384	0.487
HSGRADES	4.36	1.32
HSNOPSE [3/]	0.469	0.499
HSVOC	0.366	0.482
LONGCH46	12.31	14.68
MALE	0.496	0.500
MINORITY	0.153	0.360
MOBDCONG	0.003	0.256
MOBDFING	-0.002	0.047
MOBDGOVG	-0.010	0.268
MOBDMFGG	0.001	0.237
MOBDMNPG	0.002	0.065
MOBDNAGG	0.002	0.801
MOBDNRZG	-0.121	2.142
MOBDPOPG	-0.007	0.379
MOBDSVCG	0.004	0.179
MOBDTRDG	-0.001	0.092
MOBDTRUG	0.002	0.051
MOBDWGEG	0.005	0.587
MOVIND	1.12	1.89
NENGLISH	0.067	0.250
NUMEMP46	1.50	0.988
PRVPUB46	0.037	0.188
PSECRDT	0.141	0.348
PTTOFT46	0.044	0.204
PUBPRV46	0.027	0.163
RWGECH46	16.28	45.10
R4IUNJ45	2.47	0.852
R4NAGJ45	-1.77	2.06
R4NRZJ45	-0.395	3.53
R4POPJ45	2.25	0.842
R4TUNJ45	2.92	1.053
R4WGEJ45	9.11	1.28
R6IUNJ56	-1.41	0.843
R6NAGJ56	2.81	1.64

Table 20 (Cont'd)

Variate[1/]	Mean[2/]	SD
R6NRZJ56	9.97	8.05
R6POPJ56	2.41	0.798
R6TUNJ56	-0.890	1.024
R6WGEJ56	8.52	1.50
SES	-0.167	0.584
SMPSENCR	0.320	0.467
VOCDGCOL	0.012	0.107
VOCDGVOC	0.023	0.151
WKSWRK24	85.27	22.56
WKSWRK46	94.97	17.25

Notes: Weighted N equals 4075.

1/ See Variate Glossary for brief definition, Ch. 5 for discussion.

2/ For categorical (dummy) variates, mean x 100 equals percentage with cited trait. SD = $\sqrt{p.q}$, p = proportion with, q = proportion without trait.

3/ Reference category, not included in regression equation.

APPENDIX 5-3

Glossary of Variates

GLOSSARY OF VARIATES

*ACADG2YR: Possession (1) of a two-year academic degree earned between high school graduation and October 1974. (See also HSNOPSE, PSECRDT, SMPSENCR, VOCDGCOL, VOCDGVOC.)

*ADJWAGE4: 1974 hourly earnings, adjusted to 1976 dollar equivalent.

*CITDIFF: Difference in size of cities where resided in 1976 and 1974.

*CITIND76: Index of 1976 city-of-residence population.

*CURRWGE4: Hourly earnings, job held in October 1974.

*CURRWGE6: Hourly earnings, job held in October 1976.

*CWGECH46: Percentage increase in current-dollar hourly earnings, from 1974 to 1976.

FTTOPT46: Change (1) from full-time employment in 1974 to part-time in 1976. "Full-time" is 35 or more hours per week. (See also PTTOFT46)

*GOCDIF46: Absolute change in occupational status between jobs held in October of 1974 and 1976.

*GOCSTAT4: Occupational status of 1974 job.

*GOCSTAT6: Occupational status of 1976 job.

GOVRNMT6: Government employment (1) in the job held October 1976.

HSACAD: Academic program (1) in high school. (See also HSGEN, HSVOC.)

HSCLASZ: Number of seniors in high school class, Spring 1972.

HSGEN: General program (1) in high school. Reference category for high school program dummies, omitted from equations but occasionally tabled.

Note: An asterisk (*) before the variate name indicates more discussion in the text of Chapter 5, "Methods." For dummy variates, (1) indicates presence of trait cited.

HSGRADES: Self-reported typical ("average") grade for high school; scored as A = 7, B+ = 6, B = 5, C+ = 4, C = 3, D+ = 2, D or below = 1.

HSNOPSE: High school only, no PSE (1). Reference category for PSE dummies, omitted from equations but occasionally tabled. (See also ACADG2YR, PSECRDT, SMPSENCR, VOCDGCOL, VOCDGVOC.)

HSVOC: Vocational program (1) in high school.

*IDEATIM6: Indicator of (self-reported) amount of time spent "working with ideas" in the job held October 1976. Includes imputations. (See also PAPRTIM6, THNGTIM6.)

*JOBLONG6: Job longevity, in months, in the job held in 1976.

*JOBSAT6: Satisfaction (scored +2 to -2) with "the job as a whole," for job held in October 1976.

*LMSUC56: Index of labor market success, October 1975 to October 1976. Measures employment/unemployment experience relative to others with equal labor force participation.

*LONGCH46: Change in job seniority, from that of the job held in 1974 to the job held in 1976. Restricted to range between -24 and +24.

MALE: Sex of respondent, Male (1).

MINORITY: Racial/ethnic group membership. Self-reported "white" (0); scored (1) if: American Indian, Black, Mexican-American, Puerto Rican, Latin-American, Asian-American, or "other" in file.

*MOBDCONG: Exposure to differential growth in state construction industry employment, resulting from interstate mobility between 1974 and 1976.

*MOBDFING: See MOBDCONG; applies to financial and real estate employment.

*MOBDGOVG: See MOBDCONG; applies to government employment.

*MOBDMFGG: See MOBDCONG; applies to manufacturing employment.

*MOBDMNPG: See MOBDCONG; applies to mining and petroleum employment.

*MOBDNAGG: Exposure to differential growth in state non-agricultural employment, resulting from inter-state mobility between 1974 and 1976.

*MOBDNRZG: See MOBDNAGG; applies to sales (billions of KWH) of non-residential electricity.

*MOBDPOPG: See MOBDNAGG: applies to population aged 18 to 44.

*MOBDSVCG: See MOBDCONG; applies to service industry employment.

*MOBDTRDG: See MOBDCONG; applies to wholesale and retail trade employment.

*MOBDTRUG: See MOBDCONG; applies to transportation and utilities employment.

*MOBDWGEG: Exposure to differential growth in state average hourly earnings for production and related workers, resulting from interstate mobility between 1974 and 1976.

MOVIND: Index of distance moved from 1974 to 1976. Measured by natural log of midpoint for questionnaire categories, except open-ended highest category where ln 1000 was used. Scored zero if reported same town both years.

NENGLISH: Self-reported from home where English was not spoken (1). All others (including missing) scored zero.

*NMEMP45: Number of different primary employers during the period October 1974 to October 1975. Adjusted from self-report to exclude secondary ("moonlight") employers.

*NMSBORD6: Reported number of others supervised, in job of October 1976. Includes imputation to avoid loss of cases.

*NUMEMP46: Number of primary employers, 1974 to 1976. Adjusted from self-report to prevent double-count of 1975 employer and exclude secondary ("moonlight") employers.

*ORGSIZE6: Index of reported size (number of persons) of employing organization in 1976. Includes imputations to avoid loss of cases.

*PAPRTIM6: Indicator of (self-reported) amount of time spent "doing paperwork" in the job held October 1976. Includes imputations. (See also IDEATIM6, THNGTIM6.)

*PAYSAT6: Satisfaction (scored +2 to -2) with "pay and fringe benefits," for job held October 1976.

PRVPUB46: Shifted from private-sector to public employment (1), between 1974 and 1976. (See also PUBPRV46.)

*PSECRDT: Possession (1) of a non-degree credential obtained between high school graduation and October 1974. (See also ACADG2YR, HSNOPSE, SMPSENCR, VOCDGCOL, VOCDGVOC.)

PTTOFT46: Change (1) from part-time employment in 1974 to full-time employment in 1976. "Part-time" is less than 35 hours per week. (See also FTTOPT46.)

PTWRK6: Part-time employment (1) in October 1976. "Part-time" is less than 35 hours per week.

PUBPRV46: Shifted from public-sector to private employment (1) between 1974 and 1976. (See also PRVPUB46.)

*RWGECH46: Percentage change in real wage from 1974 to 1976. Calculated in 1976 constant dollars.

R4IUNJ45: Change, from 1974 to 1975, in insured unemployment rate; for 1974 state of residence. Measured as 1975 rate minus 1974 rate.

R4NAGJ45: Change, from 1974 to 1975, in non-agricultural employment; for 1974 state of residence. Measured as percent of 1974 value.

R4NRZJ45: Change, from 1974 to 1975, in sales (billions of KWH) of non-residential electricity; for 1974 state of residence. Measured as percent of 1974 value.

R4POPJ45: Change, from 1974 to 1975, in number of persons aged 18 to 44; for 1974 state of residence. Measured as percent of 1974 value.

R4TUNJ45: Change, from 1974 to 1975, in total unemployment rate; for 1974 state of residence. Measured as 1975 rate minus 1974 rate.

R4WGEJ45: Change, from 1974 to 1975, in average hourly earnings of production and related workers; for 1974 state of residence. Measured as percent of 1974 value.

*R6DSTRF6: A principal-component factor representing level of socioeconomic distress, in 1976, of respondent's 1976 state of residence.

*R6GRTHF5: A principal-component factor representing pace of socioeconomic growth, during 1970-76, of respondent's 1976 state of residence.

R6IUNJ56: See R4IUNJ45; applies to change from 1975 to 1976 in 1976 state of residence.

*R6MNRLF3: A principal-component factor representing mineral resource development impact in respondent's 1976 state of residence.

R6NAGJ56: See R4NAGJ45; applies to change from 1975 to 1976 in 1976 state of residence.

R6NRZJ56: See R4NRZJ45; applies to change from 1975 to 1976 in 1976 state of residence.

R6POPJ56: See R4POPJ45; applies to change from 1975 to 1976 in 1976 state of residence.

*R6POWRF1: A principal-component factor representing socioeconomic "power," in 1976, of respondent's 1976 state of residence.

*R6SESF2: A principal-component factor representing socioeconomic status level of state population, in 1976, for respondent's 1976 state of residence.

*R6SVCMF4: A principal-component factor representing socioeconomic structure in the respondent's 1976 state of residence. The key structural elements are large service (public and private) components in non-agricultural employment and large minority components in the population.

*SES: A principal-component factor representing the respondent's family (of origin) socioeconomic status. (File variate.)

*SMPSENCR: Possession (1) of no PSE credential despite some involvement in PSE between high school and October 1974. ("PSE dropout.") (See also ACADG2YR, HSNOPSE, PSECRDT, VOCDGCOL, VOCDGVOC.)

*THNGTIM6: Indicator of (self-reported) amount of time spent "working with things" in the job held October 1976. Includes imputations. (See also IDEATIM6, PAPRTIM6.)

*VOCDGCOL: Possession (1) of a two- or three-year vocational degree, granted by a college between high school graduation and October 1974. (See also ACADG2YR, HSNOPSE, PSECRDT, SMPSENCR, VOCDGVOC.)

*VOCDGVOC: Possession (1) of a two- or three-year vocational degree granted by a vocational school between high school graduation and October 1974. (See also ACADG2YR, HSNOPSE, PSECRDT, SMPSENCR, VOCDGCOL.)

*WKSWRK24: Number of weeks worked from October 1972 to October 1974. Synthesized from self-reports for 1972-73 and 1973-74. Includes imputed 1972-73 data.

*WKSWRK45: Number of weeks worked from October 1974 to October 1975. Includes imputations.

*WKSWRK46: Number of weeks worked from October 1974 to October 1976. Synthesized from self-reports for 1974-75 and 1975-76. Includes imputations.